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THE SHIP-SURGEON'S HANDBOOK



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THE SHIP-SURGEON'S HANDBOOK

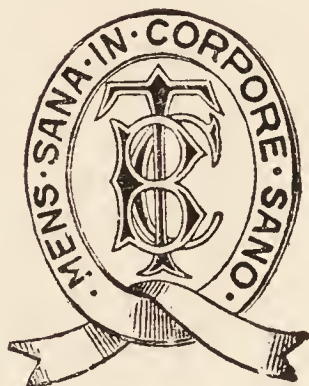
BY

A. VAVASOUR ELDER, M.R.C.S., L.R.C.P.

SURGEON, WHITE STAR LINE

LATE SURGEON, ORIENT STEAM NAVIGATION COMPANY, ETC

SECOND



EDITION

LONDON

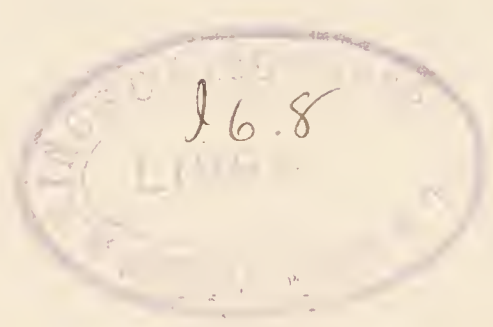
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TO
DR. W. P. SEED

(Of Perth, Western Australia)

THIS BOOK IS DEDICATED AS A MEMENTO OF A
MOST PLEASANT SOCIAL AND PROFESSIONAL INTERCOURSE
DURING A VOYAGE
TO THE LAND OF THE SOUTHERN CROSS.
IT IS TO HIS SUGGESTIONS
THAT THE BOOK OWES ITS ORIGIN,
AND THE AUTHOR TAKES THIS OPPORTUNITY OF
EXPRESSING HIS GRATITUDE.

PREFACE TO SECOND EDITION

THE unexpected yet wholly gratifying reception accorded to the first edition has prompted the author to publish a second. While most of the fundamental principles have been retained almost unaltered, save for amplification in certain instances, the book has been considerably enlarged by the addition of five chapters. Two of these are special ones having regard to the routine of the American Passenger Service, and require no comment ; whereas, the others are of a general nature, affecting all ship-surgeons. The one entitled ' Ship Etiquette and Customs ' it is hoped will justify inclusion.

In the chapter on ' Medical Logs ' special attention has been paid to the question of ' professional secrecy ' in relation to ship-surgeons, as it has always seemed that the prevailing custom at sea is somewhat at variance with generally accepted rules of procedure, and one, moreover, which should be settled by a medical authoritative body.

In conclusion, the author wishes to tender sincere and grateful thanks to all his numerous critics and friends for advice and suggestions in regard to the former and present editions, more especially to Dr. G. W. Pfromm, of Philadelphia, for most invaluable hints and help in preparing the manuscript for the press.

A. V. E.

AT SEA, 1910.

PREFACE TO FIRST EDITION

THE author's excuse for writing upon what at first sight appears to be a commonplace subject is the absence of any literature wholly devoted to the life and work of a ship-surgeon. His book is intended to be a guide only to the uninitiated, and it is hoped that it may save such from the numerous pitfalls to which they may find themselves exposed while engaged in their work. Some of these the author's own experience, and that of many contemporaries, has shown to be of actual daily occurrence. Where the text is somewhat colloquial and verbose, containing in places self-evident facts, it may be explained that it has been made so with a view to providing for nearly every contingency likely to be met with by the novice. In the author's opinion, no class of men undertake their professional duties knowing less of the surroundings in which these are performed than surgeons going to sea for their first voyage. He begs indulgence for literary style, or rather for lack of it, and hopes the book will be accepted in the spirit in which it has been written—as a guide, and not a text-book.

LONDON, 1906.

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THE SHIP-SURGEON'S HANDBOOK

CHAPTER I

CHOICE OF SHIP

A MEDICO having made up his mind to go to sea, should decide more or less upon how much time he is prepared to spend in *Wanderjahre*. If a year or two are of no material object, then it is better for him to enter the service of some large steamship company, such as the White Star, Cunard, Peninsular and Oriental, etc., and stay there until he wishes to give up the sea and settle down on shore.

If, however, he only wishes to make a trip or two after obtaining his medical qualifications, to see the world or to take a holiday, there are many ships which carry a surgeon for the voyage only. They give him the option of leaving or 'signing on' again for a second trip on completion of the round voyage. Among such may be mentioned the British India Steam Navigation Company, Holt's Blue Funnel Line, and the China Mutual Steamers, etc.

Others, again, such as Thompson's Aberdeen Line (Australia), Lund's Blue Anchor Line, Federal, Houlder, and Shire Lines, etc., will carry a surgeon for the outward

or homeward passage only. In these ships the surgeon receives no pay, and simply 'works his passage.' To comply with the law, he signs articles at 1s. a month. Some of these companies even require him to pay a sum varying from £10 to £20 for the privilege of 'working a passage' (*vide* p. 90).

The methods of obtaining a surgeoncy are as follows :—

1. By personal or written application at the company's offices, with registration thereof and waiting until a vacancy occurs. This is often slow and uncertain.

2. Through certain agents, wholesale druggists as a rule, whose names and addresses can be obtained by consulting the advertisement pages of the medical press.

Appointments obtained through these sources are subject to payment of a fee, which varies according to the monthly salary paid by the ship selected.

3. Through private influence, or that of friends in the steamship companies. Needless to add, this is the most satisfactory form of all.

The pay of surgeons other than 'passage-workers' varies from £6 to £14 a month. The average rate is about £9 per month.

Salaries at sea are always computed by the completed calendar month, odd days being reckoned at the rate of thirty to the month.

With certain exceptions, such as the Booth and Holt Lines, etc., who are endeavouring to create a medical branch on a permanent basis, long service carries no increase of pay with it. The raw 'first voyager' receives exactly the same remuneration as the seasoned veteran.

It is well to bear in mind that the candidate who is free to sail at once (he should take care to impress this

fact when applying) will stand a far better chance of obtaining a ship than he who is holding some appointment at the time, and is only at liberty after a certain date. Of course, in the case of the larger mail companies, which generally have a big list of waiting candidates, application may be made while holding a hospital appointment. In these cases the applicant should state clearly when such term of office expires, and take his chance of a speedy appointment.

Previous tenure of house-office, although not absolutely essential, is a great recommendation in obtaining a surgeoncy in the better class of company.

Ships only 'sign on' surgeons as vacancies occur, and cannot wait until any particular man is at liberty. As these generally occur at short notice, they are therefore filled by men ready to sail. It is certainly unwise for an applicant to walk into a steamship office and say he will be free on such and such a date, and wishes to sail in this or that ship. Applications in this form tend to give rise to unfavourable impressions, and in all probability will be relegated to the waste-paper basket.

Ships on agents' books cannot exactly be considered as first-class employment, and on inquiry generally prove to be cargo-boats taking a limited number of passengers. Such, while good enough for one voyage as a holiday, are valueless for a term of service. With this class of ship the surgeon should make full inquiries about her and her trade before definitely committing himself.

The usual form of procedure is for the agent to say:— 'We have a ship sailing on or about a certain date to India, or one to China or Australia. No uniform will be required.' No details as to name or class are given until the appointment is settled, or until closely questioned, when

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perhaps the name of the owners may be divulged. Under such circumstances, agreement or articles once signed, a man may find himself bound down to an inferior ship and a miserable existence for four or five months, or even longer, as letters to the medical press from time to time disclose.

The commission charged by agents is generally about £1 1s. to £3 3s., according to the rate of monthly pay being £6, £8, or £10. Strictly speaking, payment of such commission is illegal, as it may conceivably be held to come under the term of 'crimping.' Hence these fees are always payable in advance.

Before affixing his signature to the articles, the surgeon must thoroughly acquaint himself with the conditions of service laid down therein, especially in the smaller 'tramp' type of ship. When crews are engaged, the articles are usually gabbled through by the shipping-master or his deputy at so many words a minute, quite regardless of their intelligibility. When disputes arise subsequently, there is no redress, as the articles were read over prior to signing, according to the law (*vide* Appendix X., p. 374 and p. 273). Articles once signed, a man may be prosecuted if he fails to join.

Incidentally it may be stated that, according to the Merchant Shipping Act, every seaman is entitled to an 'advance note' for the sum of one month's pay as soon as he has signed articles. This is cashed by the owners two or three days after the ship has sailed on receipt of proof from the purser or master that the payee has actually joined the ship.

Surgeons in mail-steamers are appointed direct by the owners and rarely through agents, except in cases of sudden emergency. Here, naturally, personal influence or a chance call at the office when an unexpected

vacancy occurs are important factors in obtaining a surgeoncy.

The Merchant Shipping Act requires the doctor to be a 'duly qualified and registered medical practitioner' before he can sign on as 'surgeon.' When joining for the first voyage, the medico should have with him his diploma or certificate of registration. This will have to be produced before the shipping-master as evidence of identity and eligibility. As a rule, however, the current Medical Register is accepted as proof of registration. For subsequent voyages the 'Continuous Discharge Book,' granted by the Board of Trade at the end of the first trip, need only be produced (*vide* p. 275).

Undoubtedly one of the best companies to join is the Peninsular and Oriental, otherwise familiarly known all the world over as the P. & O. It is the only line affording such a variety of runs—India, China and Japan, Australia, and yachting cruises—so that at the end of his period of service (formerly two years, now twelve months, with option of further service) a man has seen a good deal of the world.

Australia, yachting cruises to the Mediterranean, Near East, and Norwegian Fjords are included in the Orient Steam Navigation Company's itinerary. The Royal Mail Steam Packet Company's services to South America and the West Indies, also the Union Castle Line to South Africa, require no further mention. The Far East and Far West are reached by the Canadian Pacific Railway Company's ships.

In the Atlantic trade, which is one almost deserving the title of 'speciality' as compared with the ordinary run of medical work in the mercantile marine, ships of the Cunard and White Star Lines offer a form of permanent employment to a man who likes the sea life, and

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yet who does not care for the routine of the Navy Medical Service.

The White Star Line maintains the following services in which a surgeon is carried:—Australian passenger; New Zealand passenger, in conjunction with Messrs. Shaw, Savill, and Albion Company; Mediterranean to Boston and New York; Liverpool to Canada, Boston and New York; and, finally, the mail service from Southampton to New York. Thus, a man who has worked his way through this fleet has had a wide and varied field of travel and clinical experience. During the busy passenger season the larger ships carry temporary assistant-surgeons in the event of there being more than 1,300 third-class passengers. Included in this company's fleet is also a sea-going training-ship, the *Mersey*, which offers a sailing-ship voyage to the Antipodes to any medico desirous of making such in a professional capacity.

Space forbids other lines being mentioned, although most of those employing surgeons will be found in Appendix XI. It might be mentioned here that the table has been compiled from details kindly supplied by the various shipping companies in response to a circular letter addressed to them by the author. Where none are given, information was either definitely refused or the circular was not returned by the firm in question.

In conclusion, a word of warning may be given, which is not to remain at sea too long. Not that there is any want of practice—a crowded passenger ship will generally afford a large and varied scope of work—but there is a danger of getting into a roving and unsettled state of mind from which it is very difficult to withdraw and settle down into a practice on shore. The longer a man stays at sea, the harder will it be for him to give it up.

Further, go to sea fairly young, see everything possible, and enjoy the world before commencing a regular medical career. It is harder to 'swallow the anchor' and retain it at forty than at twenty-seven or twenty-eight ; also, later on in life it is difficult to go to sea, even for a voyage, when a practice has to be sold or left to a *locum tenens*, and family ties bind a man to the shore.

CHAPTER II

OUTFIT AND UNIFORM

THE initial expense of uniform is mainly dependent upon the service a man enters. Some require much lace and trimmings, as well as full-dress, undress, and mess uniforms. Others are very modest :—a double-breasted reefer suit, with eight or ten brass buttons, distinctive rank stripe and cap with company's badge meeting all requirements. In some instances it may be possible to take over one's predecessor's badge, buttons, etc., for a mere trifle, thus saving a considerable sum, as these adornments of uniform are somewhat expensive to buy new. Some companies provide these gratis every two or three voyages.

In collecting uniform and outfit together, the point to bear in mind is that the uniform itself will probably never be actually worn out, and therefore to buy as little as possible, consistent, of course, with the company's regulations on this matter. On being appointed to a ship, the surgeon will invariably be given a long list of outfit which he is to obtain. If he intends remaining at sea for two or three years, then he can well carry out instructions ; but if he is only making a voyage or so, there are certain items which may be omitted and the initial expenditure kept down. For instance, a uniform waistcoat need never be worn except with mess uniform.

It is not in evidence, and any civilian garment will suffice. Thus, a saving of 10s. 6d. to 15s. per uniform suit is effected.

A regulation navy-pattern overcoat may seem superfluous seeing it is not required for use on the bridge, and the price (£4) is somewhat high. It should, however, be ordered, as during one's sea-service it serves the double duty of overcoat—for boat or gangway duty—and dressing-gown. In later years a capital driving and travelling coat, which will wear almost indefinitely, is obtained by the substitution of plain for uniform buttons.

For undress uniform a medium-weight serge is better than the blue-black cloth sometimes suggested, as it can also be worn elsewhere after removal of buttons. Moreover, although not quite so smart in appearance at the outset as cloth, the serge will look better at the end of six months' wear. Further, serge does not pick up fluff, dust, etc., or wrinkle so markedly as cloth.

The quantity and quality of outfit, apart from actual uniform, is regulated by the duration of the voyage, climatic conditions, and the chances of getting washing done at intermediate ports of call. The latter item in mail-steamers is practically impossible, or certainly not to be relied upon, as their stay in port is usually so short.

In ships engaged on a tropical voyage, where white material is worn for a considerable part of the run, it is advisable to get only a minimum number of white suits in England before leaving. The balance should be obtained in the East, where prices average from 30 per cent. to 60 per cent. less, and the fit is just as good as that of the English-made article. When ordering from

a native tailor, it is customary to let him have one suit as a model to cut others from. He will unpick it and afterwards sew it up again, returning it with the order. Care should therefore be taken to see that the 'model suit' is a good-fitting one.

A comparison of prices may be of interest. In England white suits made to measure usually cost from 15s. to 25s. each; although some can be obtained for 10s., they are not to be recommended. In Calcutta the price varies from 3 to 5 rupees (4s. to 6s. 8d.), according to material. A white uniform mess-jacket will cost anything from £1 1s. upward in England, whereas a very satisfactory one can be obtained in Calcutta for about 4 rupees (5s. 4d.).

Of course, nothing looks so nice as a well-cut, close-fitting suit of white drill; but the European price makes it an item of luxury, as, owing to constant washing, a suit soon loses its shape and smartness. As a rule, a suit will last for two days; with care three or four days' wear can be squeezed out of it. Hence a stock of suits is imperative. When ordering it is advisable to have extra stiffening put into the collars, which should also not be cut too high for the wearer, as nothing looks so untidy as a clean white jacket all crumpled at the neck an hour or so after it is put on.

In ships where white suits are not regulation uniform khaki-coloured drill can be substituted to advantage, both as regards original cost and subsequent laundry bills.

If required officially, a solar topee or sun-helmet is bought at Port Said almost as cheaply as anywhere. Prices for this article in England—as, indeed, for all other items of the so-called 'colonial or marine outfit'—are very high. In the tropics a topee is really necessary

when going ashore, or in parts of the ship not covered by awnings. Care should be taken to see that the nape of the neck is well covered by the overhanging brim of the hat. The author is inclined to believe that a large number of cases of severe headache, heat-exhaustion, and even sunstroke are brought about through lack of this precaution.

The best underwear for use with white suits is a light woollen merino vest, with sleeves to the elbow, or a navy-pattern flannel 'jumper vest' to slip over the head. The temptation to discard all underwear must be strongly resisted owing to the liability to taking a chill. With regard to under-pants, the coolest form of these for the very hot weather is a pair of knitted cotton bathing-drawers, with the centre seam suitably unpicked.

The use of a 'cholera belt' is optional. Although greatly reducing the risk of abdominal chill and its sequelæ, it has the one drawback that, once used, it must be continually worn, both day and night. For men of advanced years its adoption is, however, almost obligatory.

Too high a price should not be paid for stiff-fronted white shirts. A large stock is required, and the process of washing at most ports other than Chinese, especially after linen has lain soiled for some time in a bag, is even more destructive than in England. A fair price to pay for a serviceable white stiff-fronted shirt is from 3s. 6d. to 5s., and having it recuffed and refronted as required. In the author's experience the life of a 7s. 6d. shirt is no longer than that of one bought for 3s. 6d., and the balance saved can be profitably expended in having the latter refitted.

For ordinary daily wear the soft-fronted, stiff-cuffed shirt of a cellular type will be found most comfortable,

and can be obtained at prices ranging from 3s. 6d. to 4s. 6d.

The use of a single or double collar is optional, although only the former is uniform, and it looks better when worn with frock-coat and mess-jacket.

Only plain black silk ties are to be worn with uniform ; they should not exceed $1\frac{1}{2}$ inches in width.

Gloves are uniform with frock-coats, and are either to be of white or brown leather, according to company's regulations.

For general underwear, light flannel or woollen material should always be worn next to the skin, whether in or out of the tropics. A chill caught at sea is very difficult to get rid of, and may be attended with serious consequences. In hot weather, when diaphoresis is very free and renal activity diminished, chills and colds are very resistant to treatment and may persist until a change of air is obtained. During the passage of the ship from tropical to temperate latitudes extra precautions against catching cold should be taken by those unaccustomed to these changes.

A mosquito-net to fix up over the bunk will be found a great boon when lying in ports where these little pests are prevalent. It will insure an undisturbed night's rest, and absence of the facial disfigurement and discomfort some people are so subject to when bitten, not to mention immunity from a possible malarial infection.

In collecting an outfit together it should be borne in mind that 'marine outfitters' are accustomed to give even longer credit than ordinary firms, and put up their prices accordingly. As a rule, they allow 5 per cent. discount for cash settlement. Even with this rebate, in many instances one is paying a big price, as the

quality of their goods is in no way superior to that of other firms of men's outfitters. In fact, nothing but actual 'external' uniform should be ordered from the regulation tailor (each steamship company has its own recognized firm). The other items which go to make up an outfit can be obtained elsewhere, in a decidedly cheaper market.

Credit must, however, be given to the regulation tailors for the rapidity with which orders are executed and delivered on board at short notice. Further, it is only they who can put on braid and lace in the orthodox manner. The civilian tailor invariably fails in attempting an order of this nature, and some companies are very particular on this point.

To prevent theft and laundry losses among a large stock of underwear it is well to make an inventory, and check it personally with one's servant occasionally, and also to make him check washing on its return to the ship. As marine washing is generally done at so much a dozen pieces, everything included—usually from 2s. 6d. to 3s. a dozen—and returned as so many dozen, items are not infrequently found wanting or exchanged: generally for the worse.

In Appendix I. will be found a rough specimen list of outfit with approximate cost of various special articles.

With regard to the stock of professional literature, opinions and tastes will naturally vary. The author offers a list which covers most of the branches of work likely to be met with. Gray's 'Anatomy' may be a bulky and heavy volume to carry about, but the writer strongly urges the advisability of having some good manual of this kind on board. When once the dissecting-room and wards are left behind, anatomical

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details are some of the first to slip from memory, and yet they are liable to be wanted at any moment.

Manual of Medicine ..	Osler, Taylor, or Monro.
Treatment	Burney Yeo, Quain, Whitla, or Ortner.
Tropical Medicine ..	Manson, Ross, or Castellani and Chalmers.
Surgery	Rose and Carless.
Operative Surgery ..	Allingham, Wheeler, Treves.
Midwifery	Dakin, Jellett; also Herman's 'Difficult Labour.'
Gynæcology	Herman, Sutton and Giles.
Ophthalmology ..	May and F. A. Worth.
Anatomy	Gray, Buchanan Morris, or some volume on surgical anatomy.

Martindale and Westcott's 'Extra Pharmacopœia' is a handy little book to have by one. Others may be added according to choice, although one of each group mentioned above should figure on the shelf.

It is a good plan to arrange for some one or other of the weekly medical journals to be forwarded to various ports of call, as by this means a man can keep in touch more or less with his profession—granted, of course, that he reads them. Professional reading is generally set aside for the charms of light literature when once away at sea. Moreover, during the day there are too many interruptions of routine and other nature for serious reading. It is only 'when the lights are low,' or one should say out, that it is possible to settle down quietly to study.

A sea-going medico should make a principle of getting in touch with colleagues at the various local hospitals *en route*. It is a medical education in itself to see the different methods employed to obtain similar results. It tends to do away with a man's natural inclination to

become 'hospital hide-bound,' according to the dictum of his own medical Alma Mater. The author speaks feelingly of the unvarying kindness and courtesy extended to him by colleagues in hospitals all over the world.

A microscope is decidedly a luxury, and very rarely likely to be wanted at sea. The necessary reagents and extras required for use with it make it clumsy and cumbersome. Moreover, unless thoroughly well protected, the sea atmosphere will soon ruin a good instrument. Specially prepared cover-slips for blood-films, etc., might be taken, and subsequently studied at leisure under more suitable conditions.

If the surgeon is a photographer, he should certainly take a camera, although developing at sea is always subject to difficulties of thermal conditions and rude interruptions in the form of calls for medical attendance at critical moments, etc. For those who like it, the latter-day method of 'tank developing' does away with a good many of the foregoing objections. For the author this system robs photography of half its charm. Tabloid or powder is the best way of carrying reagents.

CHAPTER III

DRUGS

THE most cursory glance at the scale of drugs required by law to be placed on board all foreign-trade ships carrying emigrants will show it to be inadequate in some respects and somewhat superfluous in others. As an instance of the latter may be cited *linum contusum*, which must be carried at the rate of 6 pounds for every hundred passengers. It is bulky to stow away, and will probably never be used from the day of sailing to arrival home again, when it will either be left in the ship or returned to store and reshipped for the ensuing voyage.

Oleum lini, too, would also appear to be of more use to the chief officer and ship's painter for decorative purposes than to the surgeon. Carrying the *liquor ferri perchlor. fort.*, in addition to the tincture, seems unnecessary.

Relatively speaking, a large quantity of ether is required, for reasons as yet unknown to the author. As an anæsthetic it is practically useless for the greater part of a tropical voyage owing to the high external temperature and the omission to include a suitable form of inhaler in the scale. The apparatus officially supplied consists of a soft patent-leather, felt-lined conical mask.

The *liq. ammon. acetatis* is too unstable for use at sea ; the concentrated form should be carried, being broken down for use when required.

Among the more common drugs in general use not officially carried may be mentioned the tinctures of *nux vomica*, *cinchona*, and *rhubarb*. The equivalents of the two former—*liq. strychninæ* and *quin. sulph.*—are not always indicated, and are also somewhat difficult to dispense accurately in small doses, especially so if there is much vibration or movement of the ship.

Bromide of potassium—that sheet-anchor for cerebral nerve storms—is conspicuous by its absence, the ammonium salt taking its place.

Vermifuges are apparently not required on long ocean voyages.

The scale contains no simple safe and reliable hypnotic such as paraldehyde. Sulphonal is too slow and uncertain in its action, more so in warm weather; chloral, chlorodyne and opium are not always indicated or desirable, taking their subsequent astringent action into account. Veronal is a preparation which seems to have vagaries of its own as yet undetermined by the author.

Hypodermic tablets of pilocarpine nitrate ($\frac{1}{4}$ grain) might be carried with advantage, also some preparation of eserine. In five years the author has met with four cases of acute glaucoma on the high seas, which were tidied over by this means until arrival into port.

Urotropine will be found useful in cases of renal and bladder troubles, etc., and should certainly be carried.

Salol and beta naphthol, too, are of great use as intestinal antiseptics.

Flavouring agents are confined to the *spts. menth. pip.* and *chloroformi*, and perhaps *tinct. card. co.* Miscible oil of lemon or tablets of saccharine make good concentrated preparations of this nature. The standard syrups are not recommended, as they are liable to ferment if kept any length of time in hot weather.

Mucilage does not figure on the scale. *Pulv. tragacanthæ* or *acaciæ* (1 drachm to an 8-ounce bottle) is a handy vehicle, as the officinal solutions are also liable to fermentation.

In these days of antitoxins a supply of antidiphtheritic serum is just as important as vaccine in the author's opinion, and should always be carried. No doubt it will soon be officially required. A syringe for use with it is not absolutely necessary. In fact, it is the author's practice to administer the serum orally, a more rapid local effect being apparently obtained thereby. However, this is purely a matter of personal opinion.

A urinary test case is supplied, but is deficient in the Fehling test. Owing to the instability of the solutions when kept any length of time, the tabloids put up by Burroughs Wellcome are the most satisfactory form of carrying these reagents.

Capsules of amyl nitrite (3 or 5 minims) are desirable in case of need.

For short anæsthesia, ethyl chloride, with patent inhaler, is a handy method of introducing it. The vomiting which nearly always takes place after administration is a distinct drawback, and the other dangers attending its use should not be lost sight of. Somnoform, bromoform, and allied preparations are, in the author's opinion, best left alone. When indicated, a local anæsthesia of the adrenalin-eucaine type is the simplest and most satisfactory. Stovaine anæsthesia has not been tried by the author, but should offer exceptional advantages for surgical work at sea.

A supply of formalin and special lamp is preferable to the orthodox sulphur fumigation for disinfection of passenger spaces, etc. It does not injure soft goods or

tarnish metal fittings, besides being much simpler to manipulate.

It must, however, be admitted that the official scale is apparently designed for use with that excellent little manual, 'The Ship-Captain's Medical Guide,' compiled by Harry Leach, M.R.C.P., revised by William Spooner, M.R.C.S., L.R.C.P., and published by authority of the Board of Trade. In the writer's opinion, no better technical treatise for a lay reader has ever been written. It is officially placed on board all emigrant ships, and will prove a source of interesting and instructive reading to the sea-going practitioner during his first voyage. In it are described common complaints in nautical nomenclature for use when dealing with the crew, and many useful hints about medical matters at sea in general are given.

From the foregoing and also following chapters the reader may possibly derive the idea that ships are sent to sea woefully ill-found as to their medical department. It must be remembered, however, that a ship in commission, even a large mail-steamer, has neither the space nor, as a rule, the demand for the stock of a general hospital. The above remarks and suggestions are not querulous, but simply the outcome of personal experience during long voyages, some with over 800 souls on board, and passing through many changes of climate and temperature. They are put forward as suggestions only, and not fixed rules. The writer is fully aware of the fact that every medical man has his own pet drugs which he has studied, and with whose employment he is familiar, prescribing them in preference to all others of their class in the British Pharmacopœia.

Surgeons can and do make the regulation scale suffice, although most steamship companies allow in moderation

what are called 'surgeon's extras,' for use mainly among saloon passengers.

The Board of Trade scale only takes cognizance of the crew and steerage passengers or emigrants in specifying the quantity and quality of stores which must be carried. It allows nothing but the crude drugs—without embellishments—something after the style of the ordinary private pharmacopœia of a large hospital on land.

For use of saloon passengers, Morstadt's wafer cachets, or some form of empty gelatine capsule to take 5 grains, are very acceptable. The former can easily be made up with a camel's-hair brush moistened with water. *Belladonna* and court plaster, Fuller's earth, throat pastilles, etc., are some of the more common requests of passengers. In fact, there seems to be no limit to the variety of articles sometimes asked for.

Nowadays, with the ever-increasing method of tabloid medication, saloon passengers are becoming very fastidious as to their medical régime; they look to obtain it in its most up-to-date form. Although the tabloid, particularly the compound one, tends to check individual prescribing on the part of the practitioner, yet there is no real reason why the Board of Trade should not officially sanction the use of some of the more common drugs in this form. This would mean a great saving in stowage, and also breakage, a greater accuracy of dose, and a more stable standard of quality. No particular firm of manufacturers need be unduly favoured as regards supply. All products of a generally accepted standard quality should be eligible.

If the objection hitherto raised against this form of medicament—the danger of a tablet or tabloid in the hands of an unqualified person, such as a ship-master—

is still to obtain, then such could be eliminated from the scale applicable to ships not carrying a surgeon. On the other hand, there appears to be less danger in allowing a layman to dispense, say, $\frac{1}{64}$ grain of strychnine in tabloid form than giving him full control of a 6-ounce bottle of *liq. strychninæ* and a minim glass.

Further, many British Pharmacopœia solutions are of known instability—*e.g.*, *ext. ergot. liq.*, *tinct. digitalis*, etc.—and it is a moot point whether such are always renewed every voyage or tested for potency before being reshipped and officially passed by the Board of Trade surveyor.

In Appendices II., III., and IV. will be found the scale of drugs and appliances which must be placed on board all ships coming within the Emigration Section of the Merchant Shipping Act ; also a list of supplementary stores, etc., which the author's experience has found to be useful, and which he has made a practice of applying for. These have been readily supplied in all instances. Of course, there are some smaller firms of shipowners who will be found to cavil at any additional outlay over and above actual official requirements. On the whole, these are the exception, and nothing in moderation is likely to be refused.

CHAPTER IV

INSTRUMENTS AND APPLIANCES

MOST steamship companies provide all the necessary instruments. Some may require the surgeon to furnish his own pocket-case; whereas, others call upon him to supply nearly all the instruments himself, in accordance with a recognized scale. This is an unreasonable demand on the finances of a young medical man. The regulation operating case costs about £20 new. It can be obtained at the usual instrument dealer, either new or second-hand—preferably the latter, as it is not of much use for general practice, and is best disposed of when the term of service is over.

A portable sterilizer is not included in the Board of Trade scale, and should be supplied as part of the surgery fittings. It seems indeed strange that the value of the whole surgical armamentarium of a ship should be practically discounted through failure to include the one item indispensable to its efficient use—a sterilizer. The idea of using galley utensils for this purpose is hardly pleasant.

Two Spencer Wells pressure-forceps are barely sufficient, and the stock should be increased to six. They should be of the blunt-nose type.

An 8-ounce aural syringe, a nest of specula, a head-mirror, and one or two laryngeal mirrors, are useful

accessories. The head-mirror should have a spectacle frame, as elastic bands are apt to perish at sea.

A serum syringe is not an essential, unless there is any objection to administering serum by the mouth.

Ordinary finger-bandages are not official. They will come in very handy, saving the trouble of cutting an ordinary medium one into two—a matter of considerable difficulty to accomplish neatly.

One or two eye-baths will be useful. Conjunctivitis of traumatic or other origin is not rare at sea, and the usual substitutes for a bath—a liqueur-glass or a dessert-spoon—are by no means satisfactory. Eye-shades are also called for at times in conjunction with these cases.

A breast-pump may be wanted, and does not take up much room.

A nasal and oral atomizer is also frequently in demand. One with as little rubber in its component parts as possible should be selected.

At least two invalid feeding-cups and two Doulton ware hot-water bottles, flannel-covered, should be kept in the surgery, although they may be substituted in emergency by afternoon teapots and ordinary bottles respectively. India-rubber bottles, while more adaptable, are not to be recommended as, unless in constant use, they soon become useless, for reasons which will be subsequently discussed. In fact, there are many items of medical equipment in a ship which deteriorate more from want of than actual use.

Printed labels bearing directions for use, draughts, liniments, and mixtures, etc., also to 'Return the bottle,' with a rack or suitably divided box for storing, will be a great convenience if there is much dispensing to be done. Note well to affix poison labels where indicated in case of accidents. It is also a good plan, and saves

time in the long-run, to keep a regular prescription record in the surgery, so that 'repeats' are always consistent with the original. In certain lines this has to be done officially. A roller label-damper is very handy for the surgery bench.

The official ligature and suture materials—to wit, one coil of silkworm gut and a tablet of four various sizes of silk—are barely sufficient, either as regards the quantity or quality, taking into consideration the manner in which they are put on board, without any attempt at antiseptic or aseptic protection. They should be supplemented according to choice. One way is to have a tank containing spools of assorted suture and ligature gut, cutting off lengths as required. The other and perhaps more extravagant method is to obtain a stock of needles already threaded with silk, gut, or horsehair. These are put up in sealed tubes which keep almost indefinitely, being ready for instant use. Anyone who has tried sterilizing a needle and suture in a test-tube during an emergency will fully appreciate the advantage of prepared materials.

Drainage tubing could also be improved upon; that officially carried consists of a 1-foot length, No. 10 gauge, kept in a glass tube. In case of need the receptacle with the bottom knocked out would probably be of more use than the article itself.

For drainage purposes the author uses wicks made of cyanide gauze rolled up in Christy tissue. There is a very neat little 'dressing caddy' containing spools of gauze of varying widths for plugging cavities. Each edge of the gauze is finished off with a selvedge, thus avoiding fraying, and also adorning the wound with a halo of cerulean threads. A strip of finger-bandage when sterilized makes a good plug.

As an abdominal operation may be called for at almost any moment, a pair of retractors should be ordered. They do not figure on the scale. Bearing in mind the possibility of a strangulated hernia, a pattern useful in this instance should be selected, thus saving multiplicity of instruments. In emergency the handle of a metal spoon or an ordinary table-fork can be bent back, and makes a fair substitute for this article.

The artificial lighting of passenger cabins being practically useless for the examination of throats, etc., especially when patients are in their bunks, particularly lower ones, it is most convenient to have some form of pocket illuminant which can be carried about. The 'Ever-ready Electric Torch' and similar contrivances are most suitable. Care should be taken to keep spare batteries dry, and also the one in actual use, as the moisture in sea atmosphere will soon establish short circuits, and waste the battery. Pocket accumulators, though much heavier to carry about, are more satisfactory, as they can be recharged on board.

Wooden tongue-depressors, to be thrown away after use, are better than the ordinary form when going the 'round of the ship.' Metal or glass ones cannot always be efficiently cleaned in passenger cabins. The same remarks apply to cleaning thermometers. The writer always keeps a pad of wool soaked in strong antiseptic solution at the bottom of the case.

A sharp hook for use with the tracheotomy set is also wanted, there being none supplied.

With regard to dental instruments, if the surgeon already possess a pocket-set with which he is used to working, it is advisable to take it to sea. Results are more satisfactory than if strange instruments, probably antiquated in make and design, are used. Those usually

supplied consist of a set of seven in a leather roll case, and are somewhat heavy and cumbersome. A forceps which is distinctly useful is a 'bayonet-pointed upper molar stump.'

In the absence of a regular dental chair, the best position to assume when extracting lower molars is as follows:—The patient is seated on a camp-stool facing the light, the operator standing behind. Placing one foot on the edge of the stool, and firmly fixing the victim's head in the hollow of the operator's chest, the latter has absolute command. Additional control is obtained by the arm of the hand holding the tongue aside, etc., being made to encircle the patient at the neck. Thus he is practically powerless while the operator is 'getting home' with the forceps. This method is especially useful to those who are ambidextrous, all that is required being a change of hand and foot when a tooth of the opposite side is to be extracted. It need hardly be stated that the secret of successful extraction lies in 'getting home' with the forceps.

Temporary filling, a dental mirror, and one or two assorted excavators, will be found useful and opportune in allaying the pain of carious molars. Gutta-percha, mastich, or carbolized tow can all be used, according to fancy. The best form of filling is a paste of zinc oxide and oil of cloves. The cavity should be cleaned as much as possible with excavators, lightly swabbed out with pure carbolic acid, and finally well dried. It is then filled with the zinc paste. The one great drawback to this is that the paste sets absolutely hard, is watertight, and makes the patient so comfortable that he will in all probability be quite content to defer visiting a dentist until perhaps too late to save the tooth properly. Patients should be cautioned on this point.

On the whole, it is wiser not to be too eager to do dental work of any kind, as it is really outside medical practice. Some surgeons make a point of refusing to perform even an extraction. Moreover, on the principle of 'live and let live,' never extract a tooth unless absolutely necessary for the relief of suffering : every tooth drawn at sea is lost to your dental confrères.

If tempted to perform any dental operation, the patient should be given to understand clearly that what is being done is at his own wish and risk, to oblige him, and that no responsibility for anything beyond surgical cleanliness can be entertained. Passengers are apt to look upon dental operations as their just right and due, if successful ; if not, they are the first to abuse a man for meddling with something quite outside his proper sphere of influence. The tyro at sea will soon realize for himself that if a dentist breaks a tooth, it must be a bad one to extract ; but if a doctor encounters this mishap, then he is a clumsy bungler.

Legally speaking, any surgical qualification is held to cover dental surgery performed as surgery pure and simple, and the ordinary responsibilities of a surgeon are implied thereby.

The use of local anæsthesia must depend upon the surgeon himself, but if inclined to provide it, then specially made dental hypodermic needles are a *sine qua non*. The ordinary straight needle is more or less unsatisfactory for the proper injection of alveolar tissues. Also, unless skilled in its performance, alveolar injection is not so easy as might be thought.

The question of dental work has been discussed at length because more of it falls to the lot of the ship-surgeon on long voyages than to an ordinary practitioner on shore. To many medical men any suggestion of

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dentistry is at once repellent, but at sea, no matter how much a man may dislike it, sooner or later he will be forced to perform it for humanity's sake alone.

The care of surgical instruments is a question of considerable importance. Owing to the moisture invariably present in sea air, even in the tropics, all metal soon gets coated with rust unless properly protected. In the Indian Ocean, especially during the South-West Monsoon, with its accompanying rain-squalls, everything on board is moist and clammy to the touch. The best plan is to thoroughly lubricate everything likely to corrode with vaseline or *ung. boracis* at the start of a voyage. Before replacing instruments after use they should be dried and freshly lubricated. By doing this much trouble and annoyance will be saved in respect of blunt scalpels, needles, etc. Razors, too, demand the same care. The author's method is to dry the blade thoroughly on a soft towel after use. Two or three turns are given on a strop, which is kept in a drawer, and not hanging up in the cabin collecting particles of grit and coal-dust which may be floating about. Finally the blade is passed over a piece of chamois-leather slightly smeared with vaseline, and then returned to its case. The result is that razors are always sharp and in good condition. This may seem a lengthy and complicated process, but in the long-run will prove well worth the expenditure of five minutes or so after each shave. The same remarks apply to blades of safety-razors.

Metal splints, such as MacIntyre, are very liable to corrode in their working parts. They should therefore be carefully lubricated, and the joints tested from time to time.

Splints are provided in great variety, but one for which there is likely to be some call—a grooved ham-

splint—is conspicuous by its absence. Of course, the number of splints is legion, and it is not so much a case of what special splint could be done with as of one which cannot be done without. ‘Tot homines, quot sententiæ.’ A long Liston’s splint might be included in the scale, but it could, however, in conjunction with a good many others, always be improvised by the ship’s carpenter at short notice. In splints, as in other things, necessity is the mother of invention at sea. Extra broad webbing straps must be ordered, as those usually supplied with the splints are more or less quite useless, being of $\frac{1}{2}$ inch thin tape, without spring or elasticity.

A casual glance at other items of the medical stores once or twice during the voyage will not be waste of time in case any show signs of deterioration. India-rubber is much affected by sea air ; stethoscope tubing will want renewing every three or four months. Higginson’s enema syringes require testing from time to time. In some ships the unused and unsoiled portion of the old stock is cleared out of the surgery on return to home port, and then reshipped for the ensuing voyage. This is done trip after trip, until it is finally condemned on being tried and found wanting.

On one occasion, while attempting to give a rectal injection of potassium bromide with an apparently new and unused syringe, the author found the major portion of the fluid in the bunk. Although the instrument was quite new, the rubber had perished owing to climatic conditions. The best way of preserving rubber at sea is either to keep it in water or to smear it with vaseline. If very hard, a strong solution of ammonia may soften it.

Catheters should also be frequently tested for flexibility and freedom from cracks ; the consequences of attempting to pass a catheter studded with jagged pro-

jections of perished gutta-percha being almost too horrible to contemplate. One or two soft Jacques catheters should be ordered, as the only ones officially supplied are the ordinary semi-rigid, olive-headed gum-elastic, Nos. 1 to 12, and three metal ones.

The plungers of hypodermic syringes require attention during the voyage as the packing is apt to contract, rendering the instrument practically valueless at the critical time. The most satisfactory form of syringe is the 'all-glass' made by various firms. After use its component parts should be thoroughly dried with a fine silk handkerchief, which will not destroy the 'grinding' of the glass before replacing. If this is not done, capillary attraction will cause them to adhere, requiring much care and patience to liberate them. Dipping the parts in absolute alcohol, and allowing them to dry in the open, is perhaps a better plan. Should a syringe be found stuck together, it is best separated by immersion in hot water, followed by gentle attempts at rotation, and final release of the parts. It is injurious to test the vacuum of an all-glass syringe too often or too much, as the plunger may slip back sharply and crack the barrel. Needless to add, spare parts should always be carried.

While on the subject of hypodermic medication, care should be taken to see that the tablets provided are not too concentrated and are easily soluble. It is decidedly unpleasant watching a slowly disintegrating disc, say of morphia, while the patient is writhing about in the throes of an intense colic.

There is one point in regard to thermometers worthy of mention—to have one or two spare ones, and ascertain whether their readings are reliable. Nowadays most of the travelling public carry their own thermometers, and will always attribute any discrepancy of reading to

the ship's instrument. The following incident occurred to the author, and showed the importance of this.

A passenger recently discharged as cured from a consumptive sanatorium complained of feeling unwell and feverish. He asked that his temperature should be taken. This was done, and found to be 98.6° F. The patient left the room seemingly much relieved. About fourteen days later an urgent summons arrived for the author to go and see a passenger suffering from an attack of malaria, and whose temperature was said to be 106° F. Answering the call, and taking the temperature with his own instrument, a record of 103° F. was obtained. Having given the friends necessary instructions, he left the room. Presently another message was sent to the effect that the temperature was still up to 106° F., and that the friends considered the patient should be packed in ice, etc. The author, while perfectly satisfied about the case, went back to the cabin more to pacify the friends, and suggested a comparison of instruments. This was done, and a difference varying from 1.8° F. to 3° F. at different temperatures resulted. On advising the friends to put the thermometer, which was of cheap German make, out of the porthole before further alarm was caused, they demurred, saying it belonged to another occupant of the cabin—the ex-consumptive! Now, the latter had been absent from the deck and saloon for some days previously. Not having felt well (probably owing to the heat of the voyage), he was nevertheless afraid to consult the author again. The change in appearance from abject misery to complete happiness which took place in this patient when the thermometer incident was related to him impressed all who beheld it most deeply.

The foregoing has been related at length because of

the object-lesson it conveyed—to devote a little time in thoroughly overhauling and testing instruments before going to sea with them. It would be idle to conjecture the fate of the ex-consumptive but for this startling and unexpected *dénouement*. In a moment of despair caused by apparent recrudescence of his complaint, he might conceivably have jumped overboard, or attempted some other form of suicide. ‘Spes phthisica’ is very genuine until the patient is ‘cured.’ Later on it is conspicuously absent when a question of recurrence is raised. Incidentally, the foregoing is also an argument against the pernicious practice of allowing and encouraging ex-phthisical patients to take their own temperatures. If it does nothing else, it causes them to feel and fear the slightest ache or pain, no matter where situated, and become morbidly introspective. This, however, is but a digression.

On examination of the obstetrical portion of a ship's equipment much will be found wanting. It may be argued that a ship is hardly a maternity or gynæcological ward, but still, cases of this nature do arise, and it does not inspire confidence to know that in the event of a case of placenta prævia turning up, the medico has little beyond eight fingers and two thumbs wherewith to conduct it.

While not advocating a complete gynæcological outfit, there are, however, one or two items which should figure on the scale—tents, metal dilators, a blunt curette, and cervix forceps. A hydrostatic bag would most likely be found wanting at the critical moment unless carefully and constantly tended.

In connection with emergency work a stretcher will be required. It should be fitted with straps and a sling for hoisting over the ship's side. A folding portable

stretcher is made under the auspices of St. John Ambulance Association, and serves all purposes. A very good substitute can be made on board by the sail-maker, assisted by the carpenter and a member of the engine-room staff.

A piece of stout No. 1 canvas, 6 feet by $2\frac{1}{2}$ feet, is selected. The side edges are turned over and firmly sewn to form a channel about 3 inches in diameter. Through each is passed a stout pole having at least 9 inches clearance at both ends. The engine-room is called upon to provide two 'spreaders.' These are made of iron, and have a ring beaten in them at each end, making them look like a bar-bell. They are then slipped over the poles, one at each end of the stretcher, and the appliance is ready for use. Three broad canvas straps must be fitted on each side, so that the patient can be properly secured in the stretcher.

In landing a 'stretcher case' while lying at anchor in the stream or even at a wharf, the stretcher should be slung and hoisted over the side by means of a derrick and winch, as the ordinary accommodation ladder is liable to result in disaster to the patient and bearers if the ship has a high free-board. A man should be sent over with the stretcher to fend it off from the ship's side. The writer always makes a practice of doing this himself, as, in addition to the necessity, it gives confidence to the patient. With one foot in the hook of the winch-wire or chain, very little muscular pressure from the disengaged foot on the sling itself is required to keep the stretcher straight while in the air. Needless to add, a careful winchman must be selected.

With these precautions a stretcher can be transferred from the steamer's deck with a minimum of discomfort and jarring to the patient. An alternative method is

to lower a ship's boat to the level of the deck, and put the stretcher in it resting on the thwarts. The boat is then lowered into the water, and can either be rowed or, better still, towed ashore by a launch.

There are two articles which, although not of actual daily necessity, may be instrumental in saving life on board—a smoke-helmet and a cylinder of compressed oxygen. The need of the former is perhaps more urgently felt in the nautical than medical department of a ship. The latter is certainly a medical necessity, which may be called for through lack of a helmet in cases arising from fire, noxious gases, etc., which are liable to arise on board almost any ship at any time. This is quite separate and apart from its ordinary clinical use in pneumonia, etc.

If properly sealed, the cylinders last almost indefinitely, and are no greater source of danger on board than those of carbon dioxide already carried for various purposes. For ships carrying spontaneously combustible cargo one or more smoke-helmets and cylinders of oxygen should be made legally compulsory as part of their general life-saving equipment.

Before accepting delivery of medical stores, the surgeon should thoroughly overhaul them, paying special attention to the edge of scalpels, scissors, and needles ; the quality of sutures and ligatures ; the ' bite ' of forceps, etc. The author cannot impress the fact sufficiently that all time and trouble expended on this examination will amply repay the surgeon by the knowledge that all his instruments and appliances are in good condition and ready for instant use. Most surgical work at sea, major and minor, is generally of an emergency nature, and in consequence it behoves the surgeon to be prepared. ' *Semper paratus* ' is a good motto for him to adopt.

Prior to an emigrant-ship leaving England, and also certain colonial and foreign ports, her medical stores have to be surveyed and passed by an official acting under Government authority. This official has the power to prevent 'clearance papers' being issued if everything does not conform to scheduled requirements. Most of the colonial authorities have adopted the English scale practically in its entirety. The deviations therefrom are hardly worth mentioning, and can always be conformed to at the out-port. In many instances the necessary item is supplied before leaving England.

In Appendices III. and IV. will be found the official scale of instruments, and also a list of additional ones which may be required. Appendix V. contains a few hints on extemporized appliances ; these are given more as a rough guide than a fixed method of procedure.

As mentioned in Chapter III., the reader may think ships are sent to sea inadequately supplied as far as appliances are concerned. This, however, is not quite the case, although there is no doubt that a revised and up-to-date scale is very much to be desired, taking into consideration the great increase in numbers of the travelling public. This chapter may read like a list of 'omissions,' but at the same time it is the outcome of actual personal experience.

In conclusion, a few words on the subject of surgery at sea may afford interest to the reader. First and foremost, owing to the absence of proper 'theatre' accommodation on board, deliberate major surgery should never be attempted. It can only be employed in giving the patient a 'fighting chance.' If you don't operate, he is certain to die ; if you do operate, he may die. This sums up the question of major surgery at sea.

If called upon to perform a major operation, the most

satisfactory place is on deck, weather, of course, permitting. Most ships have some fairly central part which can be screened in to form an operating theatre in which the patient will be perfectly accessible to all concerned. If outdoor operations are contra-indicated, then the top of a bath will make a good operating-table when covered in with planks. The question of locality, however, must be left with the reader to decide according to the possibilities of his ship.

It is also quite an error to suppose that a ship must be stopped while an operation is in progress. She may perhaps require to be slowed down, but even this is rarely called for in the large modern liner except under heavy weather conditions. A ship will move far less when slowed down than when actually stopped, rising and falling with the sea. The surgeon should remember that a ship will always vibrate more at certain reduced speeds than at others. The commander is the man to decide what is best, and must always be referred to in these instances.

The performance of minor surgical operations of a deliberate nature rests entirely between the surgeon himself and his patient. Instances of such are removal of cysts, tumours, glands, varicose veins, ingrowing toenails, etc., and there is no valid reason why such should not be performed on board to the mutual advantage of patient and practitioner, provided always that the services of an anæsthetist partial to the use of chloroform can be obtained. No medical man is justified in attempting to combine the functions of surgeon and anæsthetist except in case of necessity. Any reader who has been obliged to undergo this ordeal will easily realize the force of the foregoing.

There are many busy business men travelling who

have some minor surgical condition demanding operation, and yet who are not in the position to devote the time necessary for such on shore. Compelled, for business reasons, to spend, say, two or three weeks or more at sea in idleness, surgical relief during this time would be most acceptable in many instances. Removal of varicose veins is an excellent example of the surgical possibilities of a long ocean voyage. It has been done under local anæsthesia.

So far no mention has been made of electro-therapeutics or, perhaps better, instances where electric energy is made use of, either directly or indirectly. It is on hand in all ships, and can easily be adapted to therapeutic purposes. All that is required is a switch-board with two or three connecting-plugs, from which the various appliances can be worked. Urethroscopy, vibro-massage, etc., are all feasible, although, of course, the surgeon must provide himself with the necessary apparatus. Small accumulators can readily be charged from the main circuit.

Incidentally, there is an ample field on long voyages for a dental surgeon in the way of mechanical and other work, and this no doubt will be developed in the near future; in fact, a dental surgery is already in existence on one line of steamers crossing the Atlantic.

CHAPTER V

STATUS AND DUTIES ON BOARD

To obviate unnecessary friction in the practice of his profession on board ship, the surgeon should always bear in mind that there is no class of men so jealous of their calling as 'those who go down to the sea in ships.' Each has his allotted place in the daily routine, and strongly resents the interference of others, especially laymen. When, therefore, it is necessary to alter the existing order of things for medical reasons, this should be done through the heads of the various departments.

If a sailor is unfit for duty, the chief officer must be notified; the second engineer for a member of the engine-room crew, and the purser for stewards, cooks, and all the odd men carried in large ships for the service of passengers. The commander must be notified at the conclusion of the daily morning inspection of all men off duty, and any case of serious sickness among passengers. Some commanders also like an evening report from the doctor. In certain companies an inspection of third-class passenger quarters is made about nine o'clock every evening by the surgeon, purser, and chief steward.

The usual form of procedure when a man is placed off duty is for the doctor either to interview the heads of departments personally, or, better still, to send them

a short note stating the fact. Some companies have official slips for this purpose. Where such system does not obtain, the author has adopted the following principle. On application to the purser, the ship's printer is directed to print a number of slips, which read as follows :—

S.S.,
, 191 .

To the

DEAR SIR,

The undermentioned is not fit for duty, and is placed on off the sick-list from this date.

Name..... *Rating*.....

.....
Surgeon.

When a man is put off duty, one of these slips is filled in, addressed, and presented to his respective head, by the patient himself where feasible. Recovery established and the man ordered to 'turn to,' another slip is made out with the requisite erasure of the words 'not' and 'on,' and sent to the head of department; this time, however, through the medium of the doctor's servant. In this fashion all chance of shirking work is done away with among the men; it prevents confusion, and is official in nature. By adhering strictly to this method the surgeon will find everything running smoothly. Whereas, if he gives orders independently, it tends to weaken discipline, and may give unintentional offence to others in authority. Moreover, pleasant as they are by promoting intercourse between shipmates, a surgeon's time in a crowded liner will not always allow him to make personal visits to fellow-officers, or he may forget to do so at the time. The result is that men go off duty, and nobody but the surgeon is aware of it.

The men, also, are not slow to take advantage of any slackness in this respect.

The medico should always remember that, as surgeon, he is head of the medical department, although it may only consist of himself, and that as such his word is law and decision final. Further, he is also an officer of the ship, entitled to just as much deference and respect from subordinates as any junior officer of the executive department. One of the first lessons to be learnt by the novice in seafaring is, in vulgar parlance, commonly known as 'Looking after Number One.' The tyro need not necessarily be aggressive, but he should firmly refuse to be put upon or bounced out of his just right and due.

When any occasion of doubt arises the commander should always be referred to, he or his immediate acting deputy being the only person on board to whom the surgeon is directly responsible. Should the commander not give the satisfaction required, and—this is most important—the surgeon is perfectly satisfied that his line of action is correct, he must support it by statement in writing to the commander, declining any further responsibility unless permitted to perform his duties unrestricted.

The reason for this mode of procedure is that, for purposes of maintaining discipline at sea, there is a clause in the Merchant Shipping Act which makes it an offence on the part of any member of the crew to 'disobey the lawful command of the master.' The 'lawful command' may mean anything or nothing, according to circumstances; but, at the same time, any command must be obeyed, and its legality questioned at the termination of the voyage in the presence of the shipping-master. Failure to obey places the seaman out of court abso-

lutely, no matter how preposterous the command may have been.

Generally speaking, such measures will never be required, as most ship-masters are quite willing to allow the surgeon to carry out his work without hindrance, and undertake its concurrent responsibility. Now and again a commander may be encountered who, in his virtually omnipotent position on board, may be rather apt to try to override the surgeon. In these unfortunate and at the same time rare instances the above-mentioned course is the only one to be pursued, pending the ship's arrival into port, when the matter must be laid before the owners, agents, shipping-master, or British Consul, according as to whether the port is a home or foreign one. The onus of interfering in a technical subject of which he probably only knows the rudiments, acquired while in sailing-ships or 'tramps,' will deter most commanders from extreme measures.

One or two illustrative instances of officials interfering with the surgeon may be of interest in showing not so much what to do, but how to do it.

A sailor was laid up with acute diarrhœa and colic. After two days the chief officer came to the surgeon, and said the man was perfectly fit for duty, and that he would put him back 'on watch.' The latter replied to the effect that the surgeon was the man to decide when the sailor was fit for duty, and that if he were 'turned to,' the responsibility for any ill consequences rested with the chief officer. The result was that the man remained in his bunk, and nothing further was said in the matter.

An intending steerage passenger was rejected at the gangway by the author. The case was one of advanced locomotor ataxia, with incompetence of sphincters, and

therefore likely to be a source of annoyance to others on board during a voyage of six weeks. In this instance the agents demurred, urging acceptance on the plea of outside competition—and no doubt inside commission also—and loss of passage-money. The author remained firm, giving a certificate showing why passage was refused, and the ship left port. Subsequently he learnt that two weeks later the patient had died. In this type of case, where a large number of people are confined in a restricted space, the community should always be considered before the individual.

While engaged in examining steerage passengers embarking at an intermediate port, repeated messages came to the surgeon from the bridge to know how long he would be, saying that he was detaining the ship, etc., thus interfering with him at his work. After the fourth message, the surgeon stopped all embarkation, and adjourned to the bridge. Arrived there, he asked the commander if he wanted him, as repeated messages were coming to him, and he had suspended the operation of embarkation to answer them in person. Needless to add, no necessity for similar steps occurred on future voyages, and the surgeon was allowed to do his work in peace.

Many more instances might be given *ad nauseam*. The reader's own personal experience will soon teach him what line to adopt, and also that, for the benefit of the ship, the commander will invariably be only too eager to aid and support him officially.

A matter which concerns the surgeon on board most intimately is his professional position, and also what it calls for. He should exercise the same check over his actions and demeanour at sea as he would on land, never losing sight of the fact that, in spite of the dual

rôle he fills on board—surgeon and sailor—the medical side takes precedence.

Rightly or wrongly, as a rule the general travelling public, and also the medical profession, appear to have but little faith or confidence in the sea-going practitioner. If he be a young man, fresh from the medical schools, then he can have had no practical experience. Should he be advanced in years, his presence on board is generally attributed to either drink, drugs, debility, or to some professional or domestic *débâcle*. On this subject nothing further need be said beyond stating that a medico at sea will always be treated according to his own merits.

Every fold contains its black sheep, and the medical one is no more exempt from such than any other. Unfortunately at sea, where everything appears magnified and worse than it really is, the backsliders are more prominently in the public eye, and their shortcomings made more manifest. Hence it rests entirely with sea-going members of the profession themselves, by their conduct and mode of life, to uphold the dignity of their calling, and exact the respect due to it at sea just as much as elsewhere.

The author is bound to admit that there appears to be wanting a sense of duty and responsibility among a certain class of ship-surgeons. The whole appointment is looked upon by them as a means of self-enjoyment and seeing the world at somebody else's expense, professional duties being the last thing ever thought of.

The modern liner, with her population verging near, or even over, four figures, bound on a voyage of perhaps five or six weeks' duration, with several ports of call—usually a fruitful source of work for the doctor—affords

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plenty of scope for a medical man, both at sea and in port. Some men make a point of being the first ashore and last on board while the ship is lying in foreign ports. Whereas, this is just the time when their services are likely to be in demand, in case of accident while the ship is working cargo in or out. Of course, it is not urged that the surgeon should stand by the ship absolutely everywhere, but only as a matter of principle to be where his presence is most likely to be required, thus cancelling the ready cry that the ship's doctor is like the proverbial policeman—never there when wanted.

Strictly speaking, unless more than one is carried, the doctor is the only officer on board without a relief or substitute; therefore, in theory, he ought never to leave the ship while she is in commission. This, of course, is almost impossible, and if enforced amounts to a distinct hardship; but the fact remains, nevertheless, that the doctor should be available at all times.

In some companies there is a rule to the effect that, unless the ship is made fast to a wharf, the surgeon must always be on board or provide, at his own expense, a suitable and approved substitute. If away from the ship, except on official business, he is liable for any medical expenses which may be incurred by her through his absence. While lying in foreign terminal ports the surgeons of different vessels often arrange to relieve one another mutually.

Where two or more of the same company's ships are lying together in a foreign terminal port, it would be a good plan if some system of 'medical guard' for the twenty-four hours, such as obtains in the navy, were instituted. The daily rotation could be arranged by the marine superintendent, and the 'guardship' would fly day and night signals. Thus surgeons would be able

to leave their ships with equanimity, knowing they were not liable to recall at any moment.

When at a wharf the author's practice on going ashore is to leave word at the gangway as to his whereabouts, giving a telephone number, if possible. In suitable ports he arranges with the chief officer for a special 'recall signal' to be hoisted in case of need. All of this may seem somewhat self-important and savour of bombast, but there is sound sense underlying it.

Before leaving his ship it is customary for the surgeon to apply to the commander or officer in command for permission to do so. He should not consider this to be *infra dig.*, as one sometimes hears medicos argue. There is nothing of the kind about it. It is simply an item of ship discipline, and should always be regarded as such. It may be a little galling for a man advanced in years to have to ask leave to go on shore from some subordinate deck-officer many years his junior, but temporarily in command of the ship: the fact remains, nevertheless.

The surgeon should always bear in mind that for the time being he is a 'seaman' as well, coming within the jurisdiction of the Merchant Shipping Act in all sections. He 'signs on and off the articles,' like any other member of the crew, and at the end of the voyage is granted a Board of Trade certificate of discharge. Here it may be stated that in the absence of any special agreement between himself and the company, as soon as a surgeon has signed off the articles he is free to go elsewhere. Also, that in the eyes of the law the surgeon signs agreement with the MASTER OF THE SHIP, and not the company. The latter are not compelled to employ him again after he has once signed clear of the ship.

End of the voyage in England—that is, when the vessel

is finally tied up to her berth—terminates all agreements under the Merchant Shipping Acts, unless some Continental port is agreed to in the first instance. In the case of the 'passage-worker' the ship can claim and retain his services until she is ready to leave on her onward journey. This will hardly ever be enforced in the case of a surgeon, but the fact is mentioned in event of doubt.

On being appointed to a ship men should determine to do their work just as efficiently and conscientiously as if it were a hospital appointment or their own practice. Thus they will do away with many of the jibes and jeers usually prevalent at the ship-surgeon's expense. An impression not infrequently exists among medical students that as soon as a man is qualified, has held house appointment, or is broken in health, he should go to sea for a holiday and rest-cure combined, incidentally doing whatever medical work may fall across his path. This may be so in the smaller, intermediate type of ship, but in a crowded liner the position is one of great responsibility. Any slackness or dereliction of duty may involve the owners and others in considerable trouble and expense. Therefore, to reiterate, perhaps *ad nauseam*, ship-surgeons should do what they are paid to do, thus upholding the dignity of the profession, as well as their own.

Sailors as a class of men will always be found gentlemen at heart, in spite of perhaps an occasional lack of social presence. Like everyone else, they naturally have their little foibles and failings, and a stranger cannot be suddenly placed among them without perhaps unwittingly offending against some of these. However, the exhibition of tact, plenty of 'give-and-take,' and good-fellowship on the part of the surgeon, will always lead to a very happy time at sea. It will also do away with

the petty little squabbles, so easily brought about and so unpleasant for all concerned, which occur from time to time between those restricted to the narrow confines of even a large mail-steamer. There is nothing so uncomfortable at sea as being at loggerheads with ship-mates : one cannot go a step outside the cabin without running up against some of them.

At intervals in the medical press one sees letters from ship-surgeons complaining of indifferent treatment, lack of courtesy, etc., shown to them on board. When comparing notes with an ' opposite number,' the author has frequently heard tales of disagreement with this or that officer of the ship. On sifting such it generally turns out that while the medico may be perfectly right in a medical sense, yet he has probably put himself out of court through ignorance of ship etiquette or lack of tact.

The surgeon must always remember that while his particular sphere is just as much an integral part of the ship as any other department, and in some instances may even rise paramount to the rest, yet it must work in harmony and unison with the composite whole. Ships were sailing the Seven Seas long before ever a medical man formed one of the crew. Consequently, from time immemorial customs arose which did not take a surgeon into much consideration. The old order of things has changed. The surgeon is now looked upon as something more than a person only carried to comply with the law under certain circumstances, and to sign necessary documents or official papers. His presence on board has become more or less indispensable, and local health authorities also recognize his official status in dealing with ships entering their ports.

Notwithstanding the foregoing, the first-voyager must not go to sea imbued with the idea that he can ' run ' a

ship as he would a hospital if there as house-surgeon. Ships are not primarily hospitals, and while there is no one to gainsay his medical orders, they should always be given with tact and consideration for others in authority, and also those in subordinate positions. At sea the ex-house-officer will often have to do personally many things previously relegated to nurses and porters, and while always 'head,' there is probably only himself in the department.

No doubt, much as it is to be desired from the patient's and doctor's standpoint, very little experience will soon convince the tyro that hospital routine cannot be maintained afloat. It behoves him, therefore, to fall into line with, though not necessarily subordinating himself to, things as they are, without worrying too much about things as they might be. He should remember that the *raison d'être* of a passenger ship is that of a carrier of human beings, and it is a little unreasonable to expect that those who have the ill-luck to fall sick on board shall or can receive all the comforts and luxuries of a well-appointed hospital or nursing home. The keen, energetic first-voyager is sometimes apt to ignore this fact. The result is friction with someone or other.

From a professional view-point the surgeon on board fills two rôles—the official Medical Officer of Health of the ship, and also of third-class or emigrant passengers. Where saloon passengers are concerned he is purely a private medical practitioner or, perhaps better still, he is considered to be at their disposal if called upon, provided the official health of the ship is not in question. This matter is discussed at length in Chapter XV.

Enough has been mentioned to give the reader some idea as to the status of a ship's surgeon ; now some rough hints on the duties will be of use. To most minds, lay

and medical, the life of a doctor on board appears to be light and easy. He has all night in his bunk—presumably—and is protected from the vagaries of the elements by having no ‘watch’ to keep. His public performances consist mainly in appearing at the gangway to receive local health authorities when the ship enters port, and obtain free pratique; a daily attendance at stated hours in the surgery to dole out measures of ‘black draught,’ or other forms of aperient medicine; to preside at a table in the saloon, and then his day’s work is done.

No thought is ever given by the travelling public to his responsibilities, medical and moral, in dealing with an epidemic disease which may perhaps attack the whole community. His anxiety in a case of enteric fever, where careful nursing, almost the whole essence of treatment, is practically unobtainable except under favourable circumstances when a trained nurse who chances to be among the passengers may volunteer her services; his doubts in a case of probable malingering, knowing full well that if he makes a mistake in either direction his reputation and prestige are gone; the decision as to the exact point at which a slightly sick man must be laid off duty—all these are unknown and unseen, consequently often unappreciated.

He is in a position of splendid isolation, having no one on board in sympathy with his work. In fact, the very exercise of his duty in some instances seems to place him in direct opposition to the interests of other departments as far as their own work is concerned. Moreover, none of these will share any blame attaching to the results of his attempts to satisfy everybody. He must, as previously mentioned, look after Number One professionally as well. There is nobody with whom he can

discuss his cases and otherwise 'talk shop' unless a fellow-medico happens to figure on the passenger-list. To use a somewhat Hibernian simile, those who have not experienced it will hardly realize what an 'oasis in the desert' it is to find a brother-ship on board. It gives a feeling of assistance at hand in time of possible necessity. A ship-surgeon lives on possibilities. The whole alphabet of medicine, from A to Z, is within his sphere, and may arise at any moment calling for prompt measures.

With reference to medico passengers, the author has adopted the following plan:—Unless one of these personally introduces himself as a fellow-practitioner, the author takes no special notice of him, and never approaches him except as he would an ordinary passenger. The reason for this is that many medicos when traveling wish to have a complete rest from professional work and worries, and do not want to be pestered by their fellow-passengers in search of gratuitous medical information. Consequently many travel incognito. In one instance a man sat next to the writer at table all the way from London to Sydney, and only divulged his professional status on the last day of the voyage, giving the foregoing as his reason.

In any case of gravity the surgeon should, however, not hesitate to call somebody in consultation if possible, or afford friends the opportunity of doing so. When a death occurs on the high seas there is always a sort of feeling, more or less implied, that such would not have taken place on land, and the surgeon should lose no chance of suppressing this. If he calls in another man, then it is a matter between themselves; but if the relatives do so, a question of consultation fee may be raised, and it is no business of his to settle it. Strange as it

may seem, the author has been asked for a consultation fee by a medical man called in by the relatives, at their request and with his consent. In a measure it was justifiable, but the incident is quoted to avoid a possible source of misunderstanding between ship-surgeons and other doctors at sea. It must also be mentioned that this is the only instance among many cases in which the author has received willing and ready help from travelling medicos in times of trouble.

Apart from purely medical and surgical duties, there are many others incidental to the position of a ship-surgeon. For purposes of brevity they will be dealt with from the standpoint of a newly-appointed medico.

Inspection of Stores.—Before sailing, the surgeon must go through the medical equipment of the ship, and satisfy himself that it comes up to Board of Trade requirements. At this time he will also apply for any 'extras' he may require (*vide* Chapters III., IV., Appendices II., III.).

Inspection of Crew.—The practice as to this item varies in different companies. Some have relegated this duty to a medical officer appointed by the Shipping Federation, who passes each man prior to signing articles. Others require their own surgeons to do this. Taking everything into consideration, it seems only right that the man who is to have medical charge of a large body of men for perhaps three or four months should have some voice in their selection. Where voyages are short and with little stay in home-port in between, this is perhaps not quite so important. It also makes an additional demand upon the surgeon's shore leave. In these instances the writer makes a practice at the end of a voyage of sending a list of men found to be 'medically undesirable' to the head of each depart-

ment concerned, with a statement that they should not be allowed to sign on for the ensuing voyage. Thus the 'crocks' are gradually weeded out. Certain companies have instituted a 'medical black list,' and look to their surgeons for data.

Until the extension of the Workmen's Compensation Act to shipping has found its level, some measure of this nature is urgently required. While in no way regretting the application of the Act—in fact, its non-application was a crying injustice to the seafaring community—the writer cannot help thinking that, up to the present, seafarers are doing their best to make employment impossible except under most stringent medical examination. Almost every week the press in shipping centres contains instances of heavy, lifelong compensation awarded for comparatively slight injury. As an instance of this, a ship's carpenter was recently awarded 19s. 6d. a week for life for loss of the right terminal thumb-joint!

Under these circumstances, the owners must protect themselves by all available methods. In addition to ordinary commercial insurance against accidents, the obvious means are a close medical inspection before engagement, and also the discharge of many who, while slightly physically defective, have been kept in employment on account of their other good qualities or length of service. No doubt before very long a happy mean will be arrived at, but as things are now the odds are much against the shipowner. Details as to examination of crew are given in Chapter X.

Gangways.—In some companies it is a rule that the surgeon must be at the gangway during the embarkation and landing of passengers.

Inspection of Passengers.—Prior to embarking, all

passengers should be inspected by the surgeon. Details of this will be found fully described in a subsequent chapter. The main reason for this is to prevent the embarkation of any passengers prohibited from landing in certain countries, or suffering from an infectious or contagious disease dangerous to the community (*vide* Chapters XIII., XVI.).

Surgeries.—The surgeon is required to attend at the surgery to see third-class passengers and members of the crew at two specified times during the day. He should fix these times himself, and be particular to observe them, as well as making others do so. With reference to saloon passengers custom varies, but it is better to arrange stipulated hours or consultations by appointment.

Daily Inspection.—This is held by the commander or his deputy every morning at sea. The surgeon accompanies the inspection for the purpose of supervising the ventilation and sanitation of the ship, tasting the food of third-class passengers, etc. In this respect the surgeon is an honorary Government official where emigrants are carried, and at the end of the voyage he is called upon to furnish a report to the Board of Trade (*vide* Appendix VI., p. 344). At the conclusion of the inspection the surgeon makes his report to the commander as to the general health of all on board. Some commanders like to be kept fully posted even to minute details. In fact, their position entitles them to this in a measure, and it is better for the surgeon to fall into line with this than to stand on the strict pedestal of professional ethics. A medium course can generally be found, and proves best for all concerned (*vide* Chapter XV.).

Accidents.—In view of the Workmen's Compensation Act having come into force with regard to seamen,

whenever an accident occurs which may be followed by remote sequelæ, full particulars must be noted at the time. Most companies have now drawn up special forms of their own for this purpose, or have arranged with the Shipping Federation to act for them. In either instance the duty of filling up these forms devolves upon the surgeon. The forms contain name of patient, nature of accident, particulars as to sobriety, negligence, etc., and the names of witnesses. They must be filled up in addition to the ordinary entries in the official log required by law (*vide* p. 55).

The same precautions should be taken in the event of passengers meeting with an accident for which they may put in a claim for damages. It seems to be a universally recognized fact that a ship or her owners are fit subjects to be mulcted in damages by all and sundry when and wherever possible. Civil law itself is by no means as clear as it should be on this point. While all average precautions against accident are taken on every ship, there is nothing which will render her 'fool-proof,' and many claims are paid outright without any regard for justice or equity to save doubtful litigation and expense. Hence particular care and attention to detail on the part of the surgeon are requisite in the interests of the company, not only before, but after an accident has occurred. Note well to fill up forms and 'log' *all cases of head injury*, no matter how slight or trivial they may appear at the time.

Official Log.—The official log of the ship is the legal record of events, extraordinary or otherwise, occurring during the voyage. In ships carrying pursers it is actually written up and kept by them, being signed by the master. The surgeon is interested in the official log, in so far that all cases of illness or accident to a member

of the crew must be entered in it by law. If a man is laid off duty through sickness, etc., the fact must be entered, also the date of his recovery and return to work. Details of births and deaths must be recorded. In these instances there are two separate portions of the log to be filled up.

It is the surgeon's duty to draft out in the rough any entry he desires made, and hand same to the purser. When the entry is made, the surgeon must sign it ; likewise any other entry he may consider necessary to make on medical grounds, such as mechanical or other restraint placed upon passengers, accidents to passengers, etc.

The law states that all cases of sickness, accident or injury to a member of the crew must be entered in the log. Strictly speaking, to do this would entail filling up more than one log-book, to the exclusion of all other items of a 'loggable' nature. Therefore some discretion must be exercised in the making of 'entries,' although the surgeon should always be on the safe side in the event of subsequent inquiries.

Medical Logs.—In all companies of any standing the surgeon is called upon to keep some record of medical work, which is handed in to the office at the conclusion of the voyage. Here again the practice varies in different companies. Some only require a tabulated résumé, either in book or sheet form, while others want full details, with perhaps a prescription book. In some companies it is the rule for the commander to examine and countersign the medical log daily !

The strict professional ethics of furnishing the head office or strangers with medical details of their patients is certainly open to question, and is always a fruitful source of argument among ship-surgeons. Visions of actions for damages against the ship-surgeon loom large

at times in consequence of this, but it seems to be a general opinion that all such reports would be held as privileged in court of law. However, as it is a matter which requires a definite ruling, and one, moreover, which may be called into legal question at any moment, an attempt will be made to state the case in detail (*vide* Chapter XV.).

Dining in the Second Saloon.—The Merchant Shipping Act only recognizes two classes of passenger—cabin and steerage. One of the essentials of a cabin passenger is that he has his meals in company with the master or some other officer of the ship. Hence some officer or other has to partake of a meal in the second cabin every day. The practice in different companies varies, but in all the doctor has to take his turn in rotation.

Divine Service.—It has been the custom for the surgeon to assist in the performance of Divine Service on Sundays at sea by reading the lessons or the prayers. This is entirely a matter for him to decide, and no objection can be raised if he does not take part. Nevertheless, if he has no scruples against doing so, there is no reason why he should not follow the usual routine. Note when reading the prayers to omit the ‘Absolution.’ Unless warned, the amateur cleric may find his congregation aghast and horrified if he forgets this fact and pronounces the ‘Absolution.’

Company's Uniform.—All companies' regulations state that officers must only appear in uniform on board. In some, uniform must be worn whenever on duty, ashore or afloat. In foreign terminal ports this may be more honoured in the breach, according to the precedent set by the commander. If sailing with one who enforces the rule, much time and unnecessary changing of clothes for meals, etc., will be saved by having a mufti suit of

blue serge and a uniform jacket of the same material. The latter can be smartly slipped on or off, as may be required. The practice which obtains in some ships of wearing a cap and badge with ordinary civilian clothes while on board in port is neither uniform nor seemly, and much to be deprecated. For further details, *vide* Chapter XVI.

Guests.—Most companies allow officers to invite guests to meals on board while in port. This should be done in moderation. In doing so, it is a matter of etiquette to introduce guests to the commander on entering the saloon ; some commanders like to be notified of their coming beforehand. Officials such as port health officers, of course, do not come under this heading, and should be entertained by, and in the interests of, the ship and company through the medium of the surgeon representing them on board. The old custom of giving surgeons an ‘entertainment allowance’ for this purpose has practically been abolished, although the ship still provides the requisites for official guests.

While on this subject a few words about guests among passengers at sea may not be out of place. All companies prohibit their officers entertaining passengers in their rooms at sea—in some, from the commander downwards. With respect to the purser and surgeon, however, the rule is not usually deemed to apply ; in fact, its application in their case is practically impossible. Therefore, while more or less tacitly allowed to entertain visitors afloat, in the author’s opinion this should only be done in moderation and with circumspection. On long voyages especially much of this form of recreation, although very pleasant and perfectly harmless in itself, is apt to give rise to unpleasantness and jealousy among passengers, unless extended to all on board.

With regard to patients, the author always makes a practice of seeing them in their rooms or in his surgery if it is possible, and not in his own room. The latter is his sanctum, and no medical man elsewhere would see patients in his bedroom, which is practically the case at sea. Of course, in some ships the surgery is located in such a position as not to be freely accessible to all passengers, in which case the foregoing must be departed from or passengers only seen in their rooms. The larger ships in the American service have two surgeries—one in the saloon accommodation, and the other in the steerage, for use of third-class passengers and crew. The leviathan of the future may possibly have a surgery in each class.

Sanitation and Ventilation.—Properly speaking, although within the surgeon's sphere of influence on board, the internal ventilation of a ship is controlled from the bridge by the officer of the watch, according to conditions of weather.

Ventilation is obtained by one of two methods—natural and artificial. The latter may be either a forced intake or forced extraction. The current of air in natural ventilation travels in the same direction as the vessel, and the usual system consists in a series of shafts leading from the deck down to the space to be ventilated. Each shaft is fitted with a movable cowl on deck, which can be trimmed front or back to wind.

In natural ventilation the forward cowl is turned back to the wind, acting as an uptake, and the after one faces it. By reversing the cowls an increased current of air is obtained, as the forward cowls will, in all probability, have a more unimpeded front to the wind, being free from the shelter of deck-houses, etc.

Another system consists of T-shaped shafts, the trans-

verse one being open at both ends, of which the forward one is the greater. The transverse limb is kept parallel to the wind, so that as the vessel travels forward a current of air passes through it. This causes a suction uptake in the vertical limb leading down below.

Wind-sails are also rigged up and kept trimmed to the wind in hot weather as an additional measure. They should be provided with guards to prevent constriction where passing through hatch gratings, etc.

Of the artificial means of ventilating lower passenger and crew spaces by means of electrically-driven fans, the extractor undoubtedly gives better results than a forced intake. In these places it is more a question of getting foul air out than letting fresh in. Where the two can be combined there is nothing better to be desired, but this is generally quite unnecessary. Fresh air will always find its way in if the foul, heated air be removed.

The opening of lower-deck ports is also controlled by the bridge. Where a large number of people are carried on this deck and conditions of weather permit, the surgeon might suggest the advisability of opening them if they appear to have been forgotten by the powers that be. This is a measure, however, which may endanger the safety of the ship, and is a matter which must be relegated entirely to the officer of the watch.

It is a rule in ships that, as the ventilating cowls are on deck, only members of the deck department are allowed to touch them for purposes of trimming. When, therefore, a ventilator requires turning to or from the wind, a message should be sent to the officer on the bridge, who will order this to be done. The only exception to the foregoing is made in the case of the engine-room department, who have control of their own ventilators.

Another matter put forward to ship-surgeons is the objection to the use of a night-chamber in passenger cabins. It cannot be healthy, especially in hot weather, for human beings to sleep in a confined space with voided urine practically within a few feet of their bunks. Moreover, the lockers in which these receptacles are stored soon become offensive unless kept scrupulously clean. The habit of paying a final visit to the lavatory before retiring should not be difficult to acquire ; all the ship's company have to do it, their rooms not being supplied with these accessories.

When going the round of inspection, it is a good plan to pull out a waste-tank or night-chamber here and there at random, to see that they are kept sweet and clean by the bedroom steward. In some ships these are put out every morning for inspection as a standing order.

Owing to the precipitation of urinary constituents by the sea-water used as sanitary flush, lavatory and urinal waste-pipes soon become coated with an evil-smelling deposit. The odour of this permeates the whole compartment, and is markedly increased on the weather-side when the wind blows up the pipes. They should therefore be flushed out twice a week or more with hot fresh water, the ordinary flow being stopped during this operation. It is quite futile to try and kill an ammoniacal smell with that of a disinfectant without treating the cause. Hot water is an excellent and safe solvent for such deposit, which consists mainly of urates. If weak acids are used for this purpose, there is a danger of dissolving more than the deposit. Commercial carbolic powder is also a fruitful source of choking in soil-pipes, and should not be used except in those of large bore. The writer has seen 2-inch pipes

reduced to less than half their diameter by a mixed incrustation of urates and carbolic powder.

Urinals themselves, unless kept very clean, soon become coated with a rust-coloured deposit of an offensive odour. 'Elbow-grease,' consistently applied by the lavatory steward, will prevent this forming. Sometimes, however, after the ship has been in port for a few days and the ordinary sea-routine temporarily suspended, the deposit will be too thick for this method. When this occurs the sanitary flush must be turned off, and the receptacle scrubbed over with swabs soaked in half-strength hydrochloric acid, which will soon dissolve the deposit, making the urinal look like new. A too liberal issue of these swabs by the surgeon is conducive to laziness on the part of stewards.

The trough type of urinal, commonly found in crew quarters, should be washed with hot water and tarred down once a fortnight, in addition to daily disinfection.

Quarters of the Crew.—The quarters of the crew should receive the surgeon's unofficial supervision as to air, light, and ventilation. It is useless to do it officially, as, naturally, everything will be prepared in readiness for inspection. It is a good plan to direct that at least 2 feet of the deck and sides of an enclosed crew-space be painted once or twice a week with lime-wash. This should also be done under the bunks. In addition to being healthy, it shows up all the dirt and débris so liable to accumulate under bunks and in odd corners.

Pediculosis of various descriptions is a constant source of trouble in the foc'sle and 'glory-hole,' requiring continuous measures to eradicate ; in fact, this is almost impossible, as a ship is no sooner cleaned on one voyage than she becomes reinfected at the commencement of

the next. Short of baking the effects of the crew prior to joining the ship, no other measure can be of much avail, except to keep the numbers down. All ships carrying a large crew and third class should be compelled to carry a steam baking-oven for this purpose. It does not occupy much space, and is practically always in demand.

Disinfectants.—The stock of ship-disinfectants is under sole control of the surgeon, and is kept in a special locker for this purpose. Disinfectant should not be issued to stewards, etc., in bulk or undiluted, as accidents are very liable to occur through the liquid being carelessly left lying about.

During a long voyage the author's practice is to serve it out diluted himself. A stated time is fixed, morning and evening, and everybody requiring disinfectant is made to bring a bucketful of water, into which the neat liquid is measured. This method is a preventive against accident and also waste of material. On being told to flush a place down, the average person is just as likely to use the neat contents of a whole tin as to take the trouble of diluting it to proper strength.

Quasi-Medical Duties.—In addition to purely professional duties, there are some cases of a quasi-medical nature in which the surgeon is called upon to arbitrate and decide. For instance, whether a lazy or slightly seasick passenger is to have meals served in his cabin, or in places not usually employed for this purpose ; the right stage at which a bibulous passenger's free access to liquor must be stopped or restricted. Another matter entirely relegated to him is that of extra or altered diet.

In all ships carrying more than one class of passenger individuals demanding, not to say requiring, extras of

diet will invariably be found among the lower classes—that is to say, in the second and third class, in contradistinction to saloon. They seem to think themselves entitled to whatever extras can be obtained. They know these are on board, and that others are receiving them, but they are also always happily oblivious to the fact that first-class passengers have paid perhaps double or treble as much for their passage. Some go on the principle that by making enough fuss their requests will be granted, if only for the sake of peace and quiet. The majority of offenders in these instances are either ‘first-voyagers,’ desirous of concealing this fact, or those who, formerly travelling saloon, have been obliged for financial or other reasons to travel second, and find the difference a bitter pill to swallow. A case in point may serve to illustrate the question of altered or additional diet.

Three days out from London one of a family of five strong, healthy-looking Jewesses fainted on the third-class deck. On coming round, she asserted the fainting to be due entirely to lack of food, as, owing to her religion, she had not been able to eat the ordinary fare. Foolishly, however, she added that a relative and co-religionist travelling in another of the company’s ships had been ordered second-class diet by the captain! When it was pointed out to her that, even if she were put on saloon diet, her religious scruples would still exist to prevent her full enjoyment thereof, she said no more. At the end of the voyage—six weeks—she and all her family presented the general appearance of well-being common to the majority.

The foregoing is a little unfortunate in that religion was given as a reason, only in this particular case it was evident from the outset that the complaint was

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not genuine. There are, however, many instances of sincere religious scruples on the subject of food, which have to be catered for at sea, and which will always be referred to the surgeon in the first instance, unless regularly provided for by the ship.

In certain companies carrying third-class passengers across the Atlantic—the White Star, for example—special kosher cooks are provided for the Hebrew element among the passengers. Kosher-killed meat, too, is supplied. The same provision is made for most of the other nationalities carried in large numbers by this company.

On long voyages vegetarian and other dietetic patients, such as diabetics, etc., are a constant source of not exactly trouble, but more or less disturbance of ordinary ship culinary routine. The passage once begun, these seem considerably put out, if not annoyed, on finding that their own particular régime of diet cannot be adequately provided.

These and similar instances require gentle yet tactful handling by the surgeon at the outset. If one passenger succeeds in obtaining some slight delicacy or change of diet, the rest will soon be clamouring for the same privileges. Separating wheat from chaff is not always such an easy matter when the company's reputation for the comfort and welfare of its patrons and the additional cost of extras have to be considered.

Medical Comforts.—The law stipulates that a certain quantity of alcoholic liquor must be carried *pro rata* in a ship as part of her medical equipment, and under the care of the surgeon. The strict letter of the law is not generally observed, the owners giving a guarantee that the requisite amount is in the ship's bar or wine-room, and at the disposal of the surgeon when required.

This is a more convenient method, saving a great deal of stowage space in the surgery.

Steerage passengers and members of the crew are entitled by law to receive alcoholic liquor gratis, when it is ordered by the surgeon on medical grounds. Such liquor comes under the term of 'medical comforts.' All other persons on board are called upon to pay for it if ordered by the surgeon medically and thus used by them. In emergency, he may sign a card for it, which is subsequently tendered to the passenger by the bar-keeper for endorsement or in exchange for an ordinary wine-card signed for an equivalent amount.

All these little items, and others too numerous and trivial to mention, constituting in some instances more worry than work, tend to make the surgeon's position in a large ship anything but the gilt-edged bed of ease most people imagine it to be. However, as a training in self-reliance, decisiveness of action, tact, and good management it is equalled by few, and surpassed by none of the earlier stages of a medical career. A year or two at sea in a large ocean liner before settling down to general practice is by no means waste of time, and will never be a source of regret to the medical man who launches into professional life in this fashion.

CHAPTER VI

PASSENGERS

It has been said of passengers that they bring themselves, their baggage, human and inanimate, and everything else on board but their brains, leaving them in some secluded spot for future use. Fortunately or otherwise, according to the surgeon's individual sense of humour, this will often turn out to be the case, as past and present generations of ship-surgeons could easily corroborate with examples too numerous to mention. For some inscrutable reason, to many, as soon as they set foot on board ship, the life there seems to entail a loss of *savoir faire*. An old passenger-ship captain once truly remarked: 'Passengers when ashore are human beings, men and women, but at sea they are a flock of silly sheep,' adding a qualifying adjective anything but flattering. One or two not uncommon incidents are given as illustrations.

A knock on the doctor's cabin-door, and a steward enters. 'Lord ——'s compliments, and he wants this prescription made up at once.' The doctor's compliments are returned to Lord ——, with a message that, although there is a surgery on board, no dispenser is kept. A few moments later and Lord —— comes to the cabin to apologize, and the prescription is dispensed.

Passengers are not infrequently under the delusion

that the ship's surgery is a chemist's shop as well, where they can get medicine made up gratis at any hour of the day or night. In fact, some seem purposely to refrain from having a stock of their own medicine made up prior to embarking, and within ten minutes or so after departure will call upon the surgeon with an empty medicine bottle in one hand and a prescription in the other. On being politely refused, they invariably get indignant ; they are quite willing to pay for it, and will report the matter to the commander or head-office. The incongruousness of asking one practitioner to dispense another's prescription never seems to enter into their mind. In one instance insult was added to injury by the statement that the particular prescription was written by a man with far more experience than that of the ship-surgeon called upon to dispense it.

In these cases enough medicine can be made up to last until the next port of call is reached, letting the passenger, however, understand quite clearly that this is done only as a matter of courtesy, and not duty. Some passengers seem to think that the latest therapeutic agents ought to be carried, and evince great surprise when their own pet alkaloid or 'elegant preparation' is unobtainable. It might be added that instances of this nature are more common among the travelling plutocracy than the aristocracy. A simple way of getting out of this question is to regret inability to dispense, owing to absence of one or two ingredients.

Another example : Time, midnight ; doctor turned in for the night ; knock at the door, which wakes him up. 'Yes, come in.' Enter a passenger attired in pyjamas of indescribable hue, who has suddenly remembered that he has had no action of the bowels for the last two days, and thinks he would like a pill, 'or something

of that sort, don't you know,' to take that night. The reply is better left to the reader's imagination.

A possible source of worry to the surgeon is the invalid who has been sent to sea for a voyage by his family physician. He joins the ship loaded up with proprietary and other preparations, and all sorts of advice as to what to do and what not to do. This is most likely given by a man who has never been to sea in his life, except, perhaps, for a Channel crossing or two. In due course the patient visits or sends for the surgeon, and tells his tale of woe, occasionally even before the ship has started. On certain lines of treatment being advised, he or she—the ladies are the worse—demurs, saying: 'Oh no, Dr. ——— says do this and that, or take this and that.' These cases are rather difficult to manage successfully, because the surgeon does not wish to be iconoclastic with regard to the shore practitioner, and yet he is naturally anxious to do what he considers best for the patient under the circumstances.

Tact and gentle persuasion is the only course to be adopted, and generally succeeds. Failing this, the case should not be undertaken, as, what with the family physician's medicine and that given on board, provided it is taken and not put through the porthole, disaster is almost certain to ensue and lead to unpleasantness.

The author considers these cases to be more the result of ignorance of local conditions at sea on the part of family practitioners than any intentional slight upon the ship-surgeon's professional skill and ability. Some instances, however, do point very strongly towards the latter view, and patients do not always take pains to hide it.

It is perfectly absurd for the medical man practising in England to say what his patient shall do when he

arrives at the Equator, unless, of course, he knows, by previous personal experience, the conditions of life which obtain there.

Much trouble would be saved the ship-surgeon and his patients if the medical men sending them to sea would communicate with him first. This should be done personally where feasible, or by letter. As an alternative, if they do not care about writing, the patients should be instructed to place themselves unreservedly in the hands of the surgeon on board. The latter will naturally do his best for all concerned.

With regard to personal interviews, these can only be held when convenient to both parties. Should he live far away, the ship-surgeon can hardly be called upon to curtail his short holiday for such a purpose—gratis, at all events. The author once travelled a distance of twenty miles to meet a family practitioner in consultation over a case which was to sail on the next voyage. He naturally expected to receive his expenses, if not a consultation fee. To his surprise, he was informed that his services were deemed to be gratis, as he was in the steamship company's employ, and on their pay-roll (shore-pay), although not actually at sea !

Having received a letter about a passenger patient, the question arises as to whether the surgeon should immediately make himself known to the patient or wait for the latter to send for him or call upon him. The intrusion of the doctor until sent for is much resented by some, whereas others, having been written about to some official of the ship, at once imagine that they are therefore *personæ gratae* on board. They expect, moreover, to be singled out from the general crowd of passengers, taking umbrage if this is not done.

Subjected to two or three snubs on this point, the author's practice is to wait for his patient to make the first move, unless specially asked by the family practitioner not to do so. The adoption of this method is strongly recommended, as it prevents the possibility of receiving a gratuitous insult when not in a position to avoid it. It also does away with the idea that he may be hunting for fees. Any little misunderstanding arising from this course can always be rectified later, in many cases to advantage. A compromise might be effected by casually approaching the patient on deck, and in conversation suggesting a subsequent professional interview.

Perhaps even a better plan in connection with this point is for the surgeon to send a short note to the passenger, stating that a letter has been received from the medical man on shore, and its contents noted in case of need during the voyage. As, however, human nature varies so much, it is quite impossible to lay down fixed laws, and the foregoing remarks are simply quoted as the outcome of personal experience.

It is policy for the surgeon to be on equally friendly terms with all the passengers on board, or none at all, remaining strictly professional. Otherwise, when the inevitable formation of cliques takes place he will, if intimate with only a select few, possibly find himself at variance with the others in consequence. This is a state of affairs much to be deplored, and which should not be given the opportunity of arising. All are equals on board as far as the surgeon is concerned, and entitled to the same amount of care and attention, whether dukes or pork-packers.

The foregoing may seem a somewhat sweeping statement, but in practice it will justify itself. As it is

impossible for any one individual to please everybody, especially at sea, it is better to adopt a stand of strict neutrality and impartiality with passengers. By doing this all detrimental comments are quashed or, one should say, are never given a chance to arise. The ideal of the ship-surgeon should be to go about doing his work quietly and unostentatiously, without making himself too prominent on deck. Further, in a crowded vessel on an average voyage there is generally too much medical work at hand to be done to allow the surgeon much spare time. At the worst he may gain a reputation for unsociability, but that in itself is no crime, and passengers will soon rely upon a man who takes his work seriously. The days are gone by when a doctor was looked upon as the ship's jester and entertainer.

Moreover, passengers are not infrequently snobbish enough to talk to and be amused by ship's officers while actually on board, yet they will totally ignore them should they happen to meet ashore. They also like to keep in with the surgeon, and make no secret of it. The author's experience of 'keeping in' nine times out of ten results in being asked sooner or later for some special privilege. If granted, this gives rise to comments of undue favouritism, while if refused, it usually terminates the 'keeping-in' process.

One of the first principles of a sailor is to know his own ship and stick to her. The same rule applies to the surgeon. He should never put passengers before shipmates, except under special or extraordinary circumstances. The former leave at the end of the trip, whereas the others live with him at all times. There is nobody so cordially disliked by his shipmates as the 'great man for passengers.'

Whether the surgeon should take a prominent or

any part in the amusements and recreations of passengers, acting as a sort of master-of-ceremonies, or keep to himself and his shipmates, cannot be stated definitely here. Some steamship companies expect surgeons to exercise their social faculties in addition to their professional ones. Others relegate such to the purser, who is head of the passenger department. On this subject readers are advised to act according to the exigencies of their service, coupled with their own individual inclinations. The note of warning is the avoidance of cliques, and an *ever-present sense of professional duty on board*. As already mentioned, it is practically impossible for a man to be a leading light on deck without neglecting some of his medical duties thereby.

Another matter in relation to passengers which is of vital interest to the ship-surgeon is that of 'drinking.' It affects not only his present career, but also his future. On many passenger-ships will be found men who are ready and eager to 'stand drinks' to officers, at all hours of the day and night. The reason of this is not apparent. Some seem to look upon it as an act of charity; others like thereby to have the entrée of officers' rooms for drinking purposes after the bars are closed.

To drink with one and not another may cause unpleasantness. To drink with all who offer will, sooner or later, bring about a physical, as well as professional wreck. Moreover, the surgeon is nominally on duty day and night, and it cannot be pleasant for passengers—ladies in particular—to be attended by a doctor in a state of alcoholic muddle, or about whose person the odour of the last 'peg' still clings.

If a man likes his whisky-and-soda at meals, there

can be no objection to his having it openly at the saloon-table. The same applies to a 'night-cap,' only the latter should be taken in the privacy of his cabin. The main point to avoid is drinking with passengers in the smoke-room. In most companies all officers are strictly prohibited from frequenting this place, also from playing cards with passengers. Although in the case of the surgeon and purser this rule may not be rigidly enforced, yet, on the whole, it is better carried out. This applies also to playing cards, as, in the event of any unpleasantness occurring with some of the card-sharpers who travel to and fro in search of lambs to fleece, it is not fitting that any officials of the ship should either be fleeced or mixed up in the process.

The subject of officers drinking alcohol at sea is always a burning topic, and all companies have regulations framed with a view either to modifying or preventing it. While in no way questioning the necessity or desirability of such legislation, the results are certainly open to doubt. Save that of actual supply, there is no law of prohibition which will prevent a man taking alcohol if he so feels inclined. The only effect of too stringent prohibition is to encourage secret drinking. No power on earth can check a man drinking in his cabin, provided only that he has the requisite liquor; and if evil it is to take a 'drink,' there can be no question as to which will be more disastrous—the open or secret way.

In the writer's opinion, no man is better for taking alcohol, especially in the tropics, where it is justly termed the white man's curse. Neither is he any the worse for abstinence in spite of certain paradoxical cases always cited when this subject is under discussion. Although holding no brief for the Rechabites, but

considering that the opportunities and temptations for excessive drinking are even greater at sea than on land, it is better to avoid alcohol altogether. He makes it a rule to abstain from the time of leaving the home port until arrival at the foreign terminal one. Drinking while there, or at an intermediate port if ashore according to fancy, he becomes an abstainer again during the run home. Thus physical, professional, and financial constitutions are saved alike. Large wine accounts, when reviewed in cold blood on 'the account of wages' at the end of a voyage, are always a source of regret to the impecunious sailor. Moreover, the little 'gin-and-bitters-before-meals' coteries common on board ship are fraught with danger. They would be perfectly safe if limited to one glass only, but invariably there are others, and an insidious habit is acquired before one is aware of it.

Whether the foregoing is the correct course to pursue is again left for the reader to decide, although the author is quite satisfied to abide by his conviction. Too many professional lives, both afloat and ashore, have been, and unfortunately will be, lost on the rocks of intemperance.

There is yet another point for the novice. Never discuss the ship, her officers, or passengers with other passengers on board. Stories have a nasty knack of returning home to roost, very much enlarged and intensified in their wanderings, causing much unpleasantness thereby. Not even the close of a cathedral excepted, there is no place in the world so well adapted to the procreation and propagation of scandal as a ship, especially so if she be full of passengers, with nothing else to do all day but eat, drink, sleep, and talk. It is a most remarkable fact, but on attempting to trace the

source of a scandal becoming somewhat involved, it will invariably be found to have originated in a passenger who left the ship at a previous port of call, and hence cannot be called to book for it.

A golden rule for any officer at sea is to hear all, see all, but to say nothing at all except to responsible superiors. The surgeon should also never lose sight of his duty in preserving strict professional secrecy. Unless care is exercised, there is a tendency for him to neglect this fact in the limited scope of conversational topics at sea. Little details, harmless enough in themselves, are apt to leak out unguardedly when 'pumped' for information, either by passengers or even shipmates in chance conversation. From these, two and two are often made to count as five, or even more.

It is a most peculiar fact that while the average layman will never 'talk shop' to a clerical or legal luminary, he will have no hesitation whatever in doing so with a medical one. This may probably be another example of the doctor's vicarious philanthropy, so much in evidence of late, but at the same time it is a practice strongly to be discouraged. With certain people medical matters are often raised at the saloon-table and in other public places on board. An excellent method of repressing this ardent desire for medical knowledge is to quietly draw attention to the surgeon's consultation hours, at which times he will be only too happy to give the required information. This is perfectly satisfactory as a rule, and need cause no unpleasantness.

To prevent any misapprehension, the writer wishes to state distinctly that neither the foregoing nor any subsequent remarks are made in a spirit of pessimism

or cynicism. They are meant solely to serve as illustrations of the peculiar psychological changes some natures undergo once they set foot on board ship. Any old sea-traveller will easily substantiate the above, and could doubtless add to it. On the other hand, it is only right to mention that some of the best and closest friends the writer has been privileged to possess have been acquired while at sea.

Indeed, it is a revelation to see how a few weeks of ship-life will bring out the essentials of human existence. Everything, both good and evil, in the character of man, and also woman, comes to the surface. Unfortunately, in the majority of cases the latter preponderates, but there are occasions when the observer is given an insight into those finer and nobler qualities of human nature which help to make the world go round, such as he would never obtain elsewhere. The sea, after all, is a fitting post-graduate college wherein to study that which is all-important to the man of medicine—human nature, its sulci and convolutions.

CHAPTER VII

FEES AT SEA, ETC.

As the position of the surgeon in relation to the question of receiving fees for services rendered to passengers other than third-class is at present somewhat ill-defined, an attempt to state the case impartially will not be out of place.

To make the point a little clearer, it is necessary to repeat the statement made in the opening chapter to the effect that the usual pay of a ship-surgeon averages about £9 a month, and that, with few exceptions, length of service carries no increase of pay with it. In other words, the ship-surgeon of many years' experience and service is in receipt of exactly the same pay as during his first voyage—an anomaly which probably exists in no other walk of life followed for any length of time. The cause for this state will be discussed in detail in this chapter.

The Merchant Shipping Act requires the presence of a 'duly authorized medical practitioner' on all British foreign-going ships having :

1. More than fifty steerage passengers on board.
2. One hundred or more of a crew.
3. Three hundred or more total souls on board.

It is also specifically mentioned that his services are to be provided gratis by the owners for steerage or

emigrant passengers and members of the crew. Nothing definite is said about attendance upon others, gratuitous or otherwise.

Under the circumstances of having a surgeon on board according to law, it has been the custom for owners to extend his gratuitous services to saloon or cabin passengers. Some companies make a point of advertising this medical attendance in the handbooks and circulars relative to the line as a special inducement for patronage.

With few exceptions, all steamship companies have a regulation absolutely prohibiting their surgeons from demanding fees from passengers. They all, however, permit them to accept whatever may be offered—from a gin-and-bitters to half-a-guinea.

The White Star, Cunard, and other lines have adopted the following rule, which is embodied in the general directions to passengers on the back of the usual passenger lists :

‘ The surgeon is authorized to make customary charges, subject in each case to the approval of the commander, for treating passengers at their request for any illness *not originating on board the ship*. In the case of sickness developed on board no charge will be made, and medicine will be provided free in all circumstances.’

The foregoing marks a distinct and praiseworthy effort on the part of the respective managers to establish a satisfactory and permanent medical branch of their service. It might well be followed by other lines to the advantage of all concerned.

Under such conditions the travelling public could rely upon finding capable and conscientious practitioners on board, and not the casual globe-trotter, with

no interests at stake, and who is ready to leave the sea as soon as anything more attractive offers. What exactly the approval of the commander is meant to imply is not quite clear. He can hardly be considered competent to adjudicate upon the actual cash value of medical services rendered. A better system would be for the companies to establish a minimum fixed fee per attendance, day and night, at the customary rates, and making this fact public.

Taking everything into consideration, it is perhaps not unreasonable for a passenger to expect gratuitous service for illness incidental to being on board, although, at the same time, it is a moot point as to whether a passenger could claim and obtain medical expenses from a railway company for the results of a cold or chill caught while travelling in their train. Accidents, of course, rank under another category. On the other hand, to turn a ship into a floating hospital, open to any 'chronic' able to pay first-class passage, is somewhat of an extreme—at any rate, as far as the doctor under present conditions of sea-pay is concerned—and it is no wonder that companies find a difficulty in retaining the services of competent men. An extreme view is that nothing but actual sea-sickness and accidents occurring on board ship should be treated gratis. This, however, opens up a large field of illness, including among others the possibility of ptomaine or other food poisoning arising at sea. All things considered, the system outlined above would be satisfactory to all if a fixed fee were established, and the 'commander's approval' deleted. The latter creates a situation untenable from every point of view. The patient may not care for the commander to know he has been treated; the surgeon has similar objections, and finally the commander is thereby made

to pose as a bill-inspector. The last is preposterous, and naturally much resented by some captains.

There is yet another argument in favour of a fixed-fee system. It saves waste of ship's drugs and also the surgeon's time. The former, although not a very big item for any one particular voyage, must mount up considerably when the working of a large fleet of ships for the twelve months is in question. In some lines a 'medicine account' is presented with the wine account at the end of the voyage by the bar-keeper.

Moreover, it is a world-wide axiom that nothing received gratis is properly appreciated. There is no doubt whatever that many passengers would never see the surgeon professionally from one end of the voyage to the other were they obliged to pay a fee. Some seem to consult him more with a view to killing time, especially out of hours, rather than because of any real bodily ailment. Others do it for the purpose of confronting the surgeon, once he has given his own opinion on the case, with that of the last medical man consulted prior to sailing, and will then endeavour to argue the facts, having no intention whatever of submitting to treatment.

Incidentally, it is well to fix stated hours for consultations. These should be posted on the surgery door or other official notice-board, and the surgeon should decline to see patients professionally apart from these times, except, of course, in case of emergency or by appointment. In some ships carrying a large number of steerage passengers such an arrangement is absolutely necessary, in order that the surgeon can get through the work before him.

He should also refrain from holding professional interviews on deck or in other public places. The surgery

or patient's cabin is the fit place for such. Under exceptional circumstances this rule may be departed from, but if the surgeon makes a practice of it, he will soon find passengers eager to discuss their ailments when and wherever they meet him. Even the saloon table is not sacred to some of them. Stewardesses and stewards should also be notified of this.

Being afraid of giving offence, many passengers—'first-voyagers' in particular—are often in doubt whether to offer remuneration in sterling or in kind to the surgeon for services rendered. It is rather unpleasant for the latter to be asked point-blank what his fee is, knowing it is *contra vires* for him to state one, and probably against his natural inclination to refuse one. A momentous silence takes place, and both parties feel awkward and stupid.

In the past some companies have added to the confusion by advertising their ships as 'ss ———; cow, surgeon, and stewardess carried.' The bovine inducement might conceivably have been placed last on the list of attractions. On the subject of the cow, there is not much to be said. As she is usually carried in a pen but little larger than herself with scarcely room to turn, for a period of six months or so, prior to being killed and eaten by the crew, toward the latter end of her time the quality and quantity of her milk leave much to be desired. Cow-carrying ships are therefore somewhat of a delusion as far as infants and invalids are concerned. Moreover, the commander usually has a first option on the milk. An amusing incident occurred in connection with the ship's cow.

On one occasion the author had a patient who was intolerant of the ordinary forms of milk carried at sea. Being desirous of employing the cow's milk for this

patient, the facts were stated to the commander, who did not seem at all inclined to forego his daily quota of milk for this purpose. As the saloon was practically empty, all the passengers were seated at the captain's table, the writer being three seats down. Biding his time, he introduced the subject of milk from the cow at sea during dinner one day, remarking on its poor quality, etc. The result left nothing to be desired. He obtained all the milk required, and the patient improved daily in spite of its poor quality.

With old voyagers who have received attention and intend remunerating the surgeon, it is usual for them to place the amount in an envelope, which is sent to the doctor's room the day they leave the ship.

It is a good plan to keep a record of all visits in some form of medical diary. When a patient voluntarily offers to pay a fee, the case can then be looked up, and the average amount chargeable mentioned, taking care, however, not to demand it unless authorized by the company. Even this at times leads to comic incidents: the patient, finding there is nothing to pay, bolts out of the room as if his life depended on it.

Fees for the treatment of venereal disease should always be demanded, and in advance, for obvious reasons. If the patient refuses, a slight reference to the undesirability of entering such a case in the medical log-book is a gentle and perfectly permissible form of blackmail which generally succeeds. The author's method is to charge an inclusive fee for all visits and attendance.

In one instance a saloon passenger came to the surgery two days out from London, with an acute attack of gonorrhœa. On the question of fee being raised, the patient demurred, but finally consented subject to a

receipt for the amount being given. After some consideration, the author being very much taken aback at such an unusual request, one was given worded as follows :

‘ Received from Mr. A.B. the sum offor private treatment of venereal disease acquired prior to embarking.’

The patient tore up the receipt immediately, and left the cabin without a word, thus clearly indicating his intention of making a complaint had a simple acknowledgment been given. On the other hand, if the receipt were wanted for a fraudulent insurance claim, then such was neatly foiled.

It is absurd affecting any mock modesty in these cases. Where possible, some definite understanding should be arrived at before commencing treatment; otherwise the surgeon may be put to much trouble and personal inconvenience without even a ‘ Thank you ’ at the end of the voyage.

Cases of chronic illness existing prior to embarkation, such as sinus, cystitis, prostates, stiff joints, etc., require considerable tact in handling. Some of these will come on board with a great flourish of trumpets about engaging the ship’s surgeon privately. After two or three weeks of constant attention they will have the audacity to offer him a quarter of the fee they would have been liable for elsewhere. At times it is even less. On one occasion, after washing out a septic bladder thrice daily for two weeks, the author was graciously offered the munificent sum of one guinea. Needless to add, this incident occurred in the early days of his maritime career. Space forbids further examples being given ; the reader will be in a position to supply them for himself shortly after going to sea.

Even where an arrangement is made beforehand, if the patient should repudiate liability, what is the surgeon's *locus standi*? Practically he has none. No man would be bothered by proceedings for recovery. He has not the time, for one thing, and for another, he would probably find himself looking for another ship if he did. Such cases must be allowed to rank as analogies of the family practitioner's bad debts. Their number, too, is by no means small, and they are only another example of the fact that—

God and the doctor we alike adore,
But only when in danger, not before ;
The danger o'er, both are alike requited—
God is forgotten and the doctor slighted.

OWEN : ' Epigrams. '

It is quite in order for the surgeon to charge a fee when a prescription is required by the patient to take away with him from the ship. Few, however, think of paying for it unless asked, and when this is done, they either go without it or put on an air of paying under protest. Some will even write back to the ship after they have left it—no doubt a very great but nevertheless unsatisfactory form of compliment to the surgeon on board, be he impecunious or otherwise.

The following little incident will show to what lengths some may go in obtaining full value for passage-money paid. A week after arrival in a colonial terminal port a message was brought to the author asking him to go to an hotel in the town and visit a lady who had been a patient of his during the voyage, or 'if this was not possible, could he send her a bottle of the "pink medicine," which had done her so much good?' The patient in question was a marked neurasthenic sent away for this purpose, and the medicine, a valerian mixture tinted with tincture of cardamoms. Inciden-

tally, she had left the ship without even saying good-bye—the unkindest cut of all, after six weeks of more or less daily attendance. The reply sent back was to the effect that the laws of the colony prohibited practice there by persons not registered in it, and that the ship's drugs were for use on board only. The name of a local practitioner was also given. Nothing further was heard of the case, neither did the local man ever hear of it.

Dental extractions in all cases but emigrants and members of the crew should be charged for, and the patient notified of this beforehand. A second-saloon passenger consulted the writer for severe toothache. There were two carious molars, practically impossible even for a dental surgeon to save. Extraction was advised, but refused by the patient on account of the fee. This was the usual one. A temporary dressing was put in, and the patient sent away. At 2 a.m. the next morning the author was called to see the man. He was bleeding profusely from two cavities. In conversation it transpired that, the pain coming on again in the evening, the patient had gone to a fellow-passenger, a dentist, who had extracted the teeth—for a consideration, let it be added. It was also discovered that the man was a hæmophilic, and a lively hour was spent in attempts to check the hæmorrhage.

From the foregoing it will be seen that, with two or three exceptions, the whole subject of fees at sea is in an unsatisfactory state. It is also likely to remain so until some definite ruling is laid down and accepted by all the steamship companies. Moreover, in the estimation of some passengers—a small minority, it is true—the surgeon is placed almost on a level with a steward, who is expected to be at the gangway when the ship

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reaches port, hand outstretched to receive his 'tip' for services rendered during the voyage.

The solution of the problem rests entirely with members of the medical profession. They should decline in a body to sail in ships under what is after all but an ill-defined form of contract labour. A minimum wage of £10 a month and a definition of status and duties are also required. At present ship-surgeons have no status beyond that of their own making, which may or may not lead to disagreement with the ship-owner, ending in ultimate discharge from his employ. It is also a form of practice in which the majority of patients are more than able to pay for medical attention at ordinary rates. As a class they are more exacting in their demands upon the surgeon than if they were paying him a fee on shore. In general practice a patient is quite happy, and, indeed, fortunate, if the medical man calls within half an hour of being sent for. Whereas, at sea some seem to think the surgeon should answer their call as a steward would a bell, with no thought that he may be engaged elsewhere.

When one considers that the sea-surgeon, often working single-handed under great disadvantages, runs exactly the same risk of an action for malpractice or blackmail as his colleague on land, it is only right that he should receive adequate remuneration for taking such. It may here be stated that the resources of the Medical Defence Union, Ltd., of London, are applicable to the service of its members practising in a British ship *on the high seas only*. They cannot be employed for the result of any incident occurring while the vessel is lying in foreign ports.

Under existing circumstances a surgeon must be carried on certain ships. This being so, owing to keen

competition in the profession for appointments in the past, he has allowed himself to be exploited for the benefit of the ship-owner and travelling public, with little advantage or protection to himself. If he makes a just complaint, or is adversely reported on by some aggrieved passenger, he is politely told that there are many applicants for a vacancy.

So far, the case has only been stated from the medical point of view ; that of the ship-owner must, in due fairness, be given. The crux of the whole case lies in the fact that, owing to lack of suitable inducements to remain on in the service, the ship-surgeon is but an ephemeral individual. He only stays at sea as long as it suits him for motives of recreation, health, or pleasure, and is ready to leave his ship at a moment's notice when conditions of service become too irksome. Men have left ships at the shortest notice possible. In some instances owners have been put to considerable inconvenience and expense thereby, to say nothing of ships delayed in their sailing. At times they have to 'sign on' any man possessed of the legal qualifications, quite regardless of his ability to fill the post. He may stay a voyage or two, then leave, and so the ball is kept rolling. In consequence, the ship-owner cannot be expected to give all the consideration and receive none in exchange.

To the unprejudiced reader the foregoing may appear to be the description of a vicious circle. And so indeed it is under existing conditions. Yet there is no valid reason why the medical service of the mercantile marine should not attain to a high standard of efficiency, and become a permanent branch of the healing art. There must be many surgeons to whom the routine of the Navy Medical Service does not altogether appeal, and yet who would go to sea under the Blue Ensign or

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'Red Duster,' and be glad enough to remain if conditions of service were made more attractive.

One factor which militates greatly against an effective medical service in the mercantile marine is the legal status under which ships are 'doctored.' The law as it now stands only requires the presence of a 'duly authorized practitioner' on board under certain circumstances. Nothing further is required, and as long as the owners have put such a person on board, the law is satisfied.

The authorized practitioner is one whose name has been submitted to, and not objected to by the local emigration officer at the port of clearance. Provided his name figures on the current Medical Register, and there is nothing known against him, the authorization becomes *fait accompli*.

No stipulations as to moral or other qualifications for a post of such possible onerous and responsible duties are made. A ship can go to sea and her medico may be worse for liquor, or medically incapacitated in his bunk the whole voyage. As a rule, nothing happens beyond the discharge, 'by mutual consent,' of the surgeon at the first available opportunity, when another is engaged in his stead, who may be just as bad, if not worse.

Yet another factor is the 'professional age' of candidates. In many instances surgeoncies are held by men recently qualified, or who have finished house appointments, and want to go to sea for a holiday. With regard to the latter there is nothing to be urged against them professionally, but the clinical experience of the former is certainly open to question, notwithstanding the advertisement of 'experienced physician or surgeon carried,' seen in most shipping announcements.

Surely, under the circumstances peculiar to ship-life, it would not be out of the way for the law to require something more than a 'duly authorized medical practitioner'—in other words, a man physically fit, morally reliable, and professionally capable of performing the duties for which he is officially carried. His possible patients, who are also his victims in unsatisfactory cases, have every right to expect this. On land a dissolute or debilitated doctor can easily be replaced, but at sea such is not possible in times of emergency.

It would impose no hardship and prove a satisfaction to all concerned if the law stepped in and made authorization depend upon the following factors to a greater extent than at present. This could be done as follows :

Candidates for ship-surgeoncies should be required to produce before the Board of Trade officials proof of—

1. Two years' legal qualification to practise.
2. Physical fitness and freedom from any chronic complaint likely to give rise to incapability for duty during the voyage.
3. Strict sobriety—not necessarily total abstinence.

The first condition is already required in certain countries—Italy, for example—and does away to a great extent with the individual out for a good time and who has had no experience of private practice.

The necessity for the second and third clauses was painfully made manifest recently by the arraignment of a sea-going medical man before the General Medical Council at the instance of the Board of Trade on a charge of 'infamous conduct.' The facts of the case briefly were these : On the diagnosis of a layman—the captain of the ship—the surgeon was 'logged' for repeated incapacity for duty through drunkenness, whereas at the inquiry it was proved that the accused was a total

abstainer, although a victim to morphomania ! (*Vide British Medical Journal*, Supplement, December 4, 1909.)

The results accruing from legislation based on these lines cannot help but be beneficial in every respect. The only people affected thereby are those least desirable for appointment.

A final factor in the case is the 'passage-worker.' On the subject of this system, in vogue in certain companies, there is of course much to be said. It is mutually advantageous to the owner and the surgeon. Many medicos have by this means been enabled to go abroad or return to England. At the same time, however, apart from the interests of professional ship-surgeons, necessarily affected by it, the 'shilling-a-month' man is hardly playing the game, and in the eyes of some he differs very little in professional conduct from the 'consultant' of renegade clubs, etc.

Custom has established a varying scale of pay for ship-surgeons, which, in spite of its wide range, is nevertheless a recognized remuneration. Therefore, for a medical man to consider his services to be worth no more than a shilling a month, plus his maintenance, is not putting much estimation upon himself or his profession. The 'hospitality *locum*' quoted in recent correspondence on the subject as being an analogue and also a *raison d'être* of the passage-worker, seems also to savour of the same nature. Has the labourer lost the worthiness of his hire in these days of vicarious medical philanthropy ? It would appear so.

The proposed formation of the British Ship-Surgeons' Association some little time back, at the instance of Dr. Metcalfe Sharpe, seemed to provide a long-felt want, and one which, had it eventuated, would have benefited everybody concerned, including the ship-owner.

Unfortunately, very little resulted from his efforts beyond a certain amount of correspondence of a most divergent and discouraging nature. It displayed that lack of cohesion and co-operation for the common good which might almost be quoted as pathognomonic of the medical profession.

The main essential for a scheme of this kind is that it should form some part of the British Medical Associations. There is no reason to believe that the Central Council would not be willing for such a division to be formed if sufficient members were forthcoming and unanimous on the point.

There must be quite a number of members of the Association already at sea to form a nucleus, to say nothing of past ship-surgeons settled down on shore, who would be willing to occupy administrative positions, as these would naturally have to be filled by stationary members. Members of pre-existing divisions could doubtless be transferred to the marine one without much difficulty on taking up nautical positions.

As for those medical men who are not members of the British Medical Association, the existence of a marine division might conceivably prove an inducement for them to join the parent Association. Thus they would derive advantage to themselves and help to extend the useful sphere of the Association as a whole.

Ship-owners, too, would soon realize the benefit of appointing as surgeons to their ships men belonging to a definite organization and subject to its rules and regulations as to conduct, etc. At first there is naturally a certain amount of opposition on their part to be expected at such a radical change from the existing order of things.

Hitherto the surgeon has practically been the only

employee on board who was more or less independent of the ship-owner. The result is to be seen in the state of affairs outlined in various parts of this book. Until this is remedied, no improvement can be expected.

As previously mentioned, for an association of ship-surgeons to have any standing or value it must be a component part of the British Medical Association. Nothing short of this has much chance of success. If sea-going medicos will not combine in their own interests, then the pages of the medical press could be devoted to better purposes than ventilating grievances dependent almost entirely upon this lack of co-operation.

Quite separate and apart from the establishment of any association of ship-surgeons, many essentials are necessary for the formation of a permanent medical service satisfactory to all. The following are desiderata from a medical standpoint :—

1. A minimum rate of pay, not less than £10 a month.
2. A progressive increase of pay, according to length of service.

One or two companies have already instituted this, but the custom is not general. The usual practice of appointing senior surgeons to the newer and faster ships is very little compensation for long service. As a rule, the popularity of the ship attracts greater numbers of passengers, and consequently entails more work and responsibility. The surgeon is the only man on board with no prospect of a progressive financial future. Seniority should also carry extra stripes with it. Medicos are just as human in the matter of uniform decorations as others afloat. The alternative is to give them the rating and stripes of a chief officer, as head of a department, at the outset, as is already the case in some companies.

3. Shore-pay similar to other officers when the ship is out of commission.

Some lines do not pay their surgeons at all while on shore in England, but nevertheless expect them to be in readiness at any time. Other firms give half-pay or full sea-pay. The latter is not too much for a professional man to keep himself on. It amounts to 6s. 8d. per diem at the rate of £10 a month. It is perfectly true that where there is no compulsory dock-duty while in port the surgeon is not actually earning his pay ; but, at the same time, he is precluded from obtaining other work during this period, which may be one, two, or even three weeks.

4. The right to demand fixed fees from saloon passengers for attendance in cases of sickness not actually arising on board, or, better still, for all cases other than sea-sickness and ship-accidents.

As previously stated, this system puts the surgeon above the level of a steward in the matter of receiving money for services rendered. The alternative of raising the pay and absolutely prohibiting the acceptance of remuneration from passengers is more or less unpracticable, and, like all other ' no gratuity ' systems, can never be properly enforced. Some surgeons of independent means make a practice of refusing all proffered fees. This in itself may be perfectly correct from their own individual standpoint, but it makes it awkward for those not similarly situated in regard to private resources, and also for passengers themselves.

In connection with this point, the writer's experience of the two systems may be of interest. In three years each of the ' authorized-fee ' and ' no-fee ' systems the results of the former never equalled those of the latter, but with them was the inward satisfaction that such were legitimately obtained as a just right and due, not

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merely a 'tip.' Also, in the former there was a marked decrease in the number of trivial and unnecessary calls upon the surgeon's time.

5. Adequate and proper accommodation for surgeons on board.

This has always been a cause for dissatisfaction in some ships. Even in certain of the modern ones the rooms provided leave much to be desired, both from a personal point of the occupant's comfort and also from the standpoint of professional work. Anything seems to be considered good enough for the surgeon. This is no doubt due to the fact—which applies to all accommodation designed for officials of a ship, other than the commander—that those who design rooms for this purpose do not have to live in them at sea. The fact that a sailor's cabin is his home for the greater part of the year is apparently lost sight of.

6. A well-defined status and rank on board.

7. The total abolition of the 'passage-worker.'

It is this type of ship-surgeon who has been largely responsible for much that is urged against the profession at sea. If it is considered necessary by law for a ship to carry a surgeon, then surely his services require remuneration at ordinary rates.

8. Perhaps the granting of an annual bonus, liable to be forfeited for unsatisfactory service.

The bonus scheme is but a suggestion, and not an actual necessity. Under existing circumstances there is absolutely nothing to induce a ship's surgeon to be earnest and thorough in his work beyond his own individual inclinations and sense of moral duty. If these run riot, what matter? Ten pounds a month, with nothing to look forward to, is not of much consequence one way or the other!

In exchange for what may be called concessions as regards the present order of things, the ship-owner has a right to, and would undoubtedly obtain similar ones from the profession. These can be summed up briefly :

1. A greater sense of duty and its faithful performance than has been manifested in the past by medicos at sea. In other words, a renunciation of the idea that service in liners is only to be undertaken as a means of seeing the world and having a good time generally. Under this may be included also a greater sense of self-restraint as to personal conduct and habits while on board.

2. A complete acknowledgment of the fact that in the modern greyhound of the seas there is plenty of work at hand which requires to be done, and which ought to be done with a man's best skill and conscientiousness.

Signs are not wanting to show that before very long some of the changes mentioned above will become accomplished facts. The work at sea in recent times has increased by leaps and bounds compared with former years. Also, there are not nearly so many entries into the ranks of the medical profession at present, and the younger generation of medicos are beginning to realize that a bare £10 a month is hardly sufficient remuneration for the work that some of the larger companies expect from them.

Such a change cannot come too soon and is bound to prove a mutual benefit to both ship-owner and surgeon. The former will obtain and retain the services of a capable and reliable man ; the latter will doubtless work hard to retain a position which has a definite future at stake. At present conditions of service are all topsy-turvy—no uniformity or regularity.

From the whole of this chapter the reader may derive

the idea that the average British ship-owner is an aggressive person. His version of the treatment received at the hands of some members of the profession would come as a surprise to the reader were it published. In the past, when applicants were plentiful, an unsatisfactory medico was dismissed at the earliest opportunity, and another put in his place; so matters were allowed to continue. Consequently, the owner would not do very much for his medical employee, and the results of this could be adequately described by superintendents of the various large steamship companies.

It is without question that the managers of all lines of any repute would be only too glad, in their own interests, to meet the medical profession halfway, if by so doing they could rely upon obtaining capable and permanent servants. It is in this matter that the function of a Ship-Surgeons' Association would prove so beneficial in arranging conditions satisfactory to all. Until this is done, there is but little hope of much general improvement. Individual firms are making attempts to create a regular medical service for their ships, and are more or less successful, but this state of affairs is by no means universal. Further, it is not to be expected until the medical profession calls for it as a whole. Ship-owners are actuated solely by commercial principles—supply and demand—and it rests with the medicos to adopt similar ones.

CHAPTER VIII

SEA-SICKNESS

WERE it not for the ubiquitous presence of this distressing condition, the author would fight shy of attempting to add to the literature on the subject already extant. It has been stated that out of a hundred cases, ninety-nine recover naturally, the remaining one being 'best left to the mercy of the ship's doctor.' The hundredth case, however, is not alone of interest, but also the ninety-nine others.

After an active sea-going experience, the author has come to the conclusion that there is no drug or therapeutic measure infallible for this condition, although much can be done by attention to detail to alleviate the sufferings of the patient. Indeed, in certain cases of concomitant pathological states, such as morbus cordis, hernia, etc., every remedy must be tried. Speaking generally of the ninety-nine cases, the measures to be adopted will be discussed under various headings, with the reservation always that what is effective in one case may possibly fail in others.

Briefly, the stages of sea-sickness are as follows : The initial, where the victim, after a period of lively chaff, becomes suddenly quiet and subdued—as Jerome K. Jerome neatly expresses it, 'he ponders.' He evinces a strong dislike to the use of tobacco, by himself or others ; feels an indefinable something in the epigastrium ; is

cold and miserable, smiling feebly when spoken to, and apparently wishing to be left alone. The next stage is that of vomiting, preceded by profuse reflex salivation. While in this state, with blue lips, suffused eyes, complexion varied shades of green, and a general disorder of mind, body and apparel, his condition is one of abject misery, and strongly deserving of sympathy. It is then that at first he is afraid the ship will sink and all be drowned ; later on his plaint is that she will not. The final stage of convalescence is generally marked by an air of blatant uppishness as far as his less advanced fellow-passengers are concerned.

Before discussing the treatment of sea-sickness, it will be of some advantage to endeavour to find out the causes at work in bringing this condition about. In the author's opinion, sea-sickness is the reflex result of certain psychical and physical causes acting concertedly in various stages of individual ascendancy. The former may be summed up in a few words—the influence of suggestion. To certain people the mere sight of a ship immediately suggests *mal-de-mer*, and cases are known of vomiting having occurred shortly after going on board a vessel while she is still made fast to the wharf. This is seen to a lesser degree in people who are quite well as long as the ship is not under way, but who get sick as soon as port is left, because, being on board, it is natural to be ill or feel squeamish for the first few days. Further, although perfectly well during the early stages of the voyage, as soon as the ship enters a locality notorious for bad weather, such as the Bay of Biscay, Great Bight of Australia, Bay of Bengal, etc., a few among the number will feel sick. Some may possibly be sick, quite irrespective of the state of the sea at that particular time.

It might be urged that in the latter series of cases the movement of the ship when entering a stretch of water with a bad reputation was just 'the last straw which broke the camel's back.' However, the writer has repeatedly satisfied himself that this is not the case. On inquiring of the officer on the bridge at the time, less motion, if anything, than before has been reported.

Again, the sight and sound of others being sick are often quite sufficient to induce the process as a sort of sympathetic reflex. The author has known cases where the telling of the old salt's cure for sea-sickness—a lump of fat pork tied to a string and swallowed, only to be pulled up again—has had the same effect.

As to the physical causes of sea-sickness, evidence is strongly in favour of the vomiting being secondary to some stimulus of cerebral origin. What that central stimulus may be the writer is not prepared to state definitely. Some observers locate it in the semicircular canals, and to a disturbance of the equilibration centre. In connection with this theory, the old sailor's yarn is of interest, and is mentioned for what it may be worth, as the author has not been able to verify it visually. It is said that if an albatross is caught and put on deck, it cannot fly away, and further, if the ship is pitching and rolling about much, the bird soon vomits. The same is said to be true of other types of sea-birds.

This may be due to the altered motion of the ship as compared with that of aviation. Yet again, it is a clinical fact that infants-in-arms are very rarely truly sea-sick; one might almost say never. They may be food-sick, but not sea-sick. Now, whether this is due to the fact that they are so used to being jumped up and down and rocked about that the additional motion of a vessel has no effect upon them, or whether it is

because their central nervous system is not sufficiently developed to appreciate it, is a matter very difficult to decide upon. It is one which, if it could be ascertained accurately, would probably clear up all doubt on this subject.

Owing to the similarity of the vomit, which in uncomplicated cases—that is, those free from any previous gastric disturbance—is always hyperacid, to that of locomotor ataxia, there are those on the other hand who attribute it to irritation of the visual centre (*vide British Medical Journal*, May 20, 1905, p. 1089). This communication shows a great deal of care and original work on the part of the author in analyzing a large number of samples of vomit, but in the writer's opinion it is open to one great objection—the premise of an uncomplicated case.

The definition of 'uncomplicated' is easy enough to understand, but seeing one under the conditions which obtain at sea is quite a different matter. In the majority of instances patients will always complain of hyperchlorhydria, and it is difficult to accept the cases referred to in the article as being 'free from any previous gastric disturbance.' No doubt if a number of persons could be found who, prior to embarking, would undergo a course of 'training'—*i.e.*, complete setting in order of the alimentary system and its coadjutors—the theory might be efficiently tested. But until this is done it must rank with the numerous other theories, so easy of enunciation and so difficult of proof.

That the origin of sea-sickness is not primarily of a gastric nature the author is quite convinced, having known personally thirty or more cases of 'weak digestion,' 'irritable stomach,' and chronic dyspepsia, who never experienced what it was to be sea-sick, no matter

how bad the weather. In fact, he is almost inclined to think that chronic dyspeptics are on the whole better sailors than those endowed with normal digestive functions.

In connection with the above theories it would be interesting to determine whether victims of locomotor ataxia are more or less subject to the disturbing influence of a vessel at sea. Out of four cases, all in about the same stage of the disease, which the writer has met with, two were quite unaffected. The remainder were, if anything, rather bad sailors, and very resistant to treatment. A fifth case, in which the diagnosis was not at all clear on the point of ataxia, but which had marked visual symptoms, suffered acutely from uncontrollable vomiting.

Victims of 'train-sickness' are notoriously bad sailors; they succumb very early, and suffer acutely. The writer has observed that dark-complexioned people are slightly more susceptible to the influence of the sea than the blonde type, male or female; also that the lymphatic of the plethoric category is more liable to be sick than the spare, nervous individual.

An important factor in the pathology of sea-sickness, and one not generally appreciated to its utmost, is hepatic congestion, or 'biliousness,' and its attendant constipation. Although not being the primary cause, it undoubtedly prolongs and aggravates the malady. It is a clinical fact that where the voyage is begun in smooth water and continues so for fifteen or sixteen days, as on the run from England to Bombay or Colombo during the prevalence of the South-West Monsoon, directly the ship gets into rough water after passing Cape Guardafui, the effects are earlier apparent, more severe, and of longer duration than when the voyage

has commenced with bad weather. This is undoubtedly due to the state of hepatic congestion and constipation brought about by the undisturbed enjoyment of sixteen days of over-eating, over-sleeping, and lack of exercise so general among passengers at sea. It is one of the attendant troubles of a long sea-voyage to those not previously warned, the general good living and *dolce far niente* state of existence on the modern liner being most conducive to hepatic congestion and a universal condition of plethora.

Another factor in connection with sea-sickness in women is the possible coexistence of a gynæcological or obstetric cause. This should be borne in mind in all cases of intractable vomiting in women at sea. On land vomiting of obscure nature in women always suggests the possibility of pelvic disorder, but at sea, owing to natural causes, this fact is not so likely to be thought of. The diagnosis rests on the character of the vomiting, which is always typically reflex (effortless), and the results of vaginal examination. On short voyages, where such a cause is suspected, the patient as a rule will not undergo examination, but on long voyages it is almost imperative. In these cases none but local measures are of use ; drugs are absolutely ineffectual, as well as being decidedly contra-indicated. Under the heading of 'Pelvic Pathology and Sea-Sickness,' a case was reported by the author in the *British Medical Journal*, November 17, 1908. Since that date three others of a similar nature which yielded more or less to temporary pelvic treatment have come under his observation.

Reverting now to the general methods employed in treating sea-sickness, although mentioned somewhat in detail, the author wishes to protest strongly against

the use of depressant drugs as routine practice on the grounds of empiricism and possible idiosyncrasy of the patient. The conditions which obtain when a surgeon is called upon to treat a case do not permit of a careful inquiry into the latter. Moreover, the gastric disturbance which almost invariably follows their use in the large quantities necessary to obtain much result is a great contra-indication.

It is true the patient may have been relieved of his sea-sickness, but only at the expense of a disordered stomach, which is then the next organ requiring treatment.

Where the voyage is one of short duration, such as a Channel crossing, sea-sickness may be almost entirely prevented by free purgation and the administration of bromides for two or three days prior to departure. In fact, every patient should be ordered by his medical practitioner to take cholagogue purgatives for two or three nights previous to a sea-voyage, even if only a Channel trip. The best results are obtained by the use of an aloin, euonym, and mercurial pill at night, followed by a saline in the morning, then bromides for two days.

It is astonishing at times to see the state of rectal congestion in which many passengers will embark. Women, it is almost needless to add, are the worst offenders.

If, however, the voyage is to be one of several weeks' duration, it is obviously undesirable to keep a patient saturated with bromides, etc., and the most rational method is to advise careful attention to diet and bowels—intake and output. He should be told to live plainly, abstaining from the rich and savoury concoctions so dear to the chef, drink alcohol in moderation, if desired, and, above all, to obtain at least one good

evacuation daily. This should be done by means of exercise coupled with mild doses of purgatives as required.

As a general routine, drugs of depressant nature should be withheld, and natural recovery encouraged. Of course, where the vomiting and distress are severe, these measures may have to be adopted to prevent a state of general exhaustion and debility.

In extreme cases, where the stomach cannot retain anything, careful rectal feeding is sometimes necessary ; but, at the same time, the reader should bear in mind the length of time a gastric ulcer case or one of enteric fever manages to subsist on practically nothing. Sea-sick patients, or rather their friends, are apt to think they are on the point of dissolution unless able to partake of three hearty meals per diem, and will worry the surgeon no little on this point. Twenty-four, forty-eight, or even seventy-two hours of starvation hurts nobody, and this fact should be used to repress a desire for over-feeding.

The therapeutics of sea-sickness may be stated briefly in three words : posture, diet, and drugs.

Posture.—In all cases the recumbent position is undoubtedly the best, either below in the bunk or on deck. The author strongly urges his patients to lie on deck in the open as much as possible, so that the full benefit of strong, fresh sea air may be obtained. Unfortunately, although very naturally so, ladies are diffident about being on deck until they have acquired their sea-legs, preferring to be ill in the privacy of the cabin in spite of its stuffiness and other discomforts.

Additional comfort while in the recumbent position is afforded by a flannel binder drawn somewhat tightly round the abdomen. In bad cases the head should be

kept very little raised above the rest of the body and a mustard-leaf or ice poultice placed over the epigastrium.

It is a good plan to instruct patients when on deck to breathe slowly and deeply, thoroughly expanding the chest each time. The respirations should be at the rate of about fifteen or sixteen times a minute, and synchronize, if possible, with the upward heave of the vessel. If able to stand upright, the patient should face the breeze or have the deck-chair turned towards it.

Diet.—No fixed scheme of diet can be laid down, as sea-sick persons often evince cravings for certain articles of food, somewhat analogous to the ‘longings of pregnancy’ so marked in many women during the early months of gestation.

One case subsisted for four days on green apples, thin lunch biscuit, and weak brandy-and-soda without vomiting; all other food was distasteful and steadily declined. Another, when feeling squeamish, had a predilection for grilled mutton-chops; a third for lean ham. Others, again, prefer sour things, such as pickles, salted meat, smoked fish, etc., and there are many who want nothing at all. The main point to observe in the matter of diet is to feed little and often, so as to give the patient something to be ‘sick with’ and avoid retching, leaving the selection to him. Where a great fancy for a special article of food is expressed, it should be gratified, if possible, no matter how bizarre or indigestible it may seem. The chances of its being retained are far greater than if the patient is given something he does not fancy.

Among some of the ‘fancies’ expressed to the writer by those in the throes of sea-sickness may be instanced cold pork and chutney, lobster salad, sweetbread, steak and onions, etc. If no wish for any particular

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article of diet exists, then fluids such as water or milk arrowroot, beef-tea, Liebig's extract, with pieces of crisp dry toast are the easiest to take and assimilate. They should be given frequently in small quantities, hot or cold, according to choice. With fresh-made beef-tea all traces of fat should be removed carefully before serving, as sea-sick patients are most fastidious, and a very slight detail is quite sufficient to turn them against all nourishment. A small tablespoonful of Worcester sauce added to the beef-tea makes it more palatable to some sufferers.

Iced champagne, slowly sipped, has been much extolled, but in the experience of the writer it has not justified itself except as a means of swelling the bar profits.

Stout is another liquid with much vaunted properties in cases of sea-sickness. Here, again, it may be tried and continued if satisfactory.

A mixture of stout and champagne in equal parts is sometimes very beneficial, and has many staunch supporters.

Dry ginger-ale, allowed to defervesce before drinking, can often be retained when everything else fails.

Some patients prefer plain dry biscuits or toast, washed down with a little iced milk-and-soda. If ship's milk is distasteful, brandy can be substituted. As a rule, there is a marked preference for cooled or iced drinks ; warm ones seem to be rejected more rapidly.

Ice to suck is always gratifying, and may relieve nausea.

Pineapple, either the fruit or juice, slowly taken, has a wonderful effect at times, and in many instances has proved a sort of last resort. The reason for this is not known to the author. The tinned variety, although not so good as the fresh fruit, can be used, if desired.

As previously mentioned, no special scale can be prescribed on routine principles. The best results will be obtained by the surgeon *consulting and gratifying the fancies of the patient as much as possible*, always remembering, however, that a moderate degree of starvation is not harmful, but beneficial ; also that the patient should have some fluid to be 'sick with.' This constitutes a mild form of gastric lavage. The complete operation is advocated by some, and might be tried if the patient were willing. It is quite a mistake to withhold fluid under the impression that this will prevent vomiting. It does nothing of the kind, and only increases the patient's suffering while attempting vainly to reject nothing.

Drugs.—The number of drugs which have been used is legion. No single one, or combination thereof, can be mentioned as a specific ; in fact, no illness human flesh is heir to is so resistant to the influence of drugs as sea-sickness. Whooping-cough or asthma may perhaps be granted second place.

Before prescribing any special drug, careful evacuation of the bowels should be obtained. This must be done without setting up a condition of looseness ; otherwise the patient's sufferings will be much added to by the synchronous incidence of vomiting and diarrhœa. The fluid extract of cascara, in 1-drachm dose, appears to be the most satisfactory form of purgative to administer, as it brings about a complete evacuation without any griping or purging. If time presses, then an ordinary enema of soap and water or, simpler still, a glycerine suppository may be given to expedite matters.

The bowels having been opened, one of the following may be tried :

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A combination of potassium bromide and chloral-amide, sometimes known as 'chlorobrom.'

R Pot. brom.	..	..	..	℥ss.
Chloralamide	..	..	..	℥ss
Syrupi	..	..	..	℥i.
Aquam	..	..	..	ad ℥i.

Sig. : Two tablespoonfuls for an initial dose ; half that amount repeated every two hours for six doses.

Syrup of chloral and potassium bromide is sometimes an effective combination.

R Pot. brom.	..	..	..	grs. xx.
Syrupi chloral.	..	..	..	℥i.
Syrupi aurant.	..	..	..	℥i.
Aquam	..	..	..	ad ℥ss.

Sig. : A tablespoonful every two hours for six doses.

Sal volatile and potassium bromide yield good results

R Potassii brom.	..	..	..	grs. xx.
Spt. ammon. arom.	..	..	..	℥xx.
Tinct. aurant.	..	..	..	℥xx.
Aquam	..	..	..	ad ℥ss.

Sig. : A tablespoonful every two hours for six doses.

A mixture of the three bromides has also a very satisfactory effect in many instances.

R Pot. brom. ..	..	..	..	℥i.
Sod. brom.	..	..	..	℥ii.
Ammon. brom.	..	..	..	℥iii.
Spt. menth. pip.	..	..	..	℥ii.
Aq. chlorof.	..	..	ad	℥vi.

Sig. : Two teaspoonfuls every hour for six or eight doses.

Sir T. Lauder Brunton's method of administering a drachm of potassium bromide dissolved in a large bottle of iced soda-water and slowly sipped, is an excellent

way of giving it. It has proved successful in many instances in the writer's experience.

As mentioned before, the great contra-indication to the use of the above class of drugs is that to obtain any effect they must be given in large doses, oft repeated, which not infrequently sets up a subsequent gastritis.

Dilute hydrocyanic acid in combination with morphia and bismuth will render relief, especially in cases of coexisting gastric disturbance.

R	Acid. hydrocyan. dil.	..	..	℥ ii.
	Liq. morphin. hydrochlor.	..	..	℥ vii.ss.
	Bismuthi carb.	..	..	grs. x.
	Syrupi	..	..	ʒi.
	Aq. menth. pip.	..	..	ad ʒss.

Sig. : A tablespoonful every two hours for six doses.

Tincture of iodine (℥ i. to ℥ iii.) in a wineglassful of water every two or three hours may afford relief.

Creosote can be given in the same way ; also tincture of chiretta, which is most likely the active principle of a patent remedy—' Kreat Halviva '—sold for this purpose.

Chloretone has yielded very little result in the writer's practice ; in fact, he has given up administering it, except when other measures fail.

Nitro-glycerine will be mentioned subsequently.

Antipyrin grs. ii.ss., with cocain. hydrochlor. gr. $\frac{1}{8}$, every two hours for seven or eight doses may be tried.

Cocain. hydrochlor. gr. i. in sherry ʒviii., a tablespoonful every hour, may be tried ; but if used, the nature of the drug should be withheld from the patient.

Cerium oxalate has given good results in some cases, but is by no means a specific.

Strontium bromide is much advocated at present, but

the writer has not had sufficient experience with it to form any conclusion. It is worth trying, however.

Validol, a comparatively recent German synthetic preparation of valerian and free menthol, has given most excellent results. In the author's practice it is the measure first tried, and has given an average of 70 per cent. of success in all cases. When given prophylactically, its results are even better than as a curative agent. The prescribed method of giving it on a lump of sugar has not proved itself the best in the author's experience, as the large quantities of sugar tend to nauseate the patient. It is best given, either neat or in a weak alcoholic solution, in 10 to 15 minim doses, repeated half-hourly if required. It can be encapsuled.

While on the subject of drugs, even at the risk of 'puffing' a proprietary article, due praise must be granted to a liquid called 'Yanatas,' which has afforded relief in many cases, especially for short voyages, such as a Channel crossing. Probably, however, like all other patent medicines not absolute frauds, the only thing patent about it is the price, which is high. Of the preparations 'Mersyren,' 'Zotos,' and 'Seajoi,' the author is unable to speak, not having tested them fully.

Almost every year one or two new proprietary preparations are put on the market, the older ones dying out or being withdrawn. Most of the later ones seem to rely upon hyoscyamine and its allies for their efficacy. These are generally given in the form of minute granules, of varying strength and consistency.

The wisdom of patients taking preparations of this nature *ad lib.* without medical advice is open to serious question. Below are given extracts from directions accompanying a specific recently sent to the writer for trial:

‘ THE INSTRUMENT IS OF HIM WHO USES IT.

‘ It is impossible to give a hard-and-fast rule for all cases under all conditions. More will be needed when the sea is rough than when it is smooth.

‘ One who is easily affected by sea-sickness will require more than one who is not.

‘ A large, fleshy person needs more than a thin one. . . .

‘ Be governed by conditions and common sense, and the granules will do their work perfectly. . . . Remember always—small doses frequently until the colour returns to the face plainly, the pulse to the wrist, and the nausea and faintness cease. Withdraw the remedy slowly or rapidly as the effects appear slowly or rapidly.

‘ AFTER-EFFECTS.

‘ Greater strength, “ exhilaration,” and a “ world-look-bright ” feeling.

‘ The face will be pallid until the patient has taken enough, and much flushed when more than enough has been taken. Don’t be alarmed at that ; stop the granules and the flushing will pass away in a few hours.’

The above speaks for itself. The instructions to a layman for watching the physiological action of such a drug as hyoscyamine require no comment beyond complete condemnation.

A dose of vegetable bitters combined with a mineral acid is very grateful and comforting after an attack of vomiting. It seems, as patients say, ‘ to settle the stomach ’ until the next bout takes place.

R	Tinct. nux. vom.	..	..	..	℥ v.
	Tinct. gent. co.	..	..	..	℥ xx.
	Tinct. aurant.	..	..	..	℥ xx.
	Acid. hydrochlor. dil.	..	..	..	℥ xv.
	Aquam	..	..	..	ad ʒss.

Sig. : A tablespoonful in water after vomiting ; not to be taken more than once in two hours.

The above, made up with soda bicarb. (grs. xx.), instead of the acid, is preferred by some patients, especially in those cases where the vomit is hyperacid.

Where, in addition to sea-sickness, there is also hepatic congestion great relief is gained by the exhibition of calomel in small doses. An $\frac{1}{8}$ or $\frac{1}{6}$ of a grain should be taken every hour until 1 or 2 grains in all have been administered. This is then followed by a mild saline. Given in this way, the 'alterative' action of the drug is obtained without undue purging.

When patients known to be subject to hepatic congestion can be seen before embarking, a 'liver pill' of podophyllin, euonym, calomel, and aloin taken at bedtime, and followed by a morning saline, should be ordered as a suitable prophylactic. They should be advised to obtain a stock of these prior to departure.

Referring now to the 'hundredth' type of case, these are the ones which have proved fatal, and which therefore require most careful watching and treatment. Setting aside the complications of surgery and obstetrics, the cases to look out for are those of disease of the circulatory system—*morbis cordis*, arterio-sclerosis, and chronic interstitial nephritis, with hard, slow pulse, thickened and tortuous arteries, etc. In these instances vomiting, if not checked, may easily terminate fatally through hæmorrhage where there is much accompanying straining, to say nothing of minor hæmorrhages, such as retinal, resulting in total or partial blindness.

Here nitro-glycerine is the drug *par excellence* to employ; in fact, its use is obligatory. Given in the form of tablets, one every hour for four or five doses or so, the effect on the pulse and general condition of the patient is most marked. Nitrite of amyl, although more transient in effect, may be given during an attack

of vomiting and straining in order to relieve the high tension due to expulsive efforts superimposed upon pathological high pressure, and thus prevent the possibility of rupture. Morphia naturally is contra-indicated, especially if granular kidney is present.

That commonplace, ubiquitous and hitherto undefined condition of 'weak heart' requires more mental than pharmaceutical treatment. It should, however, not be made too light of by the practitioner in his management of the case. While having no distinct pathological corporeity, it has a definite mental entity in the patient, and calls for just as much sedative treatment, though not necessarily in the form of pill or powder.

In cases of chronic pulmonary tuberculosis—and there are many to be found travelling backwards and forwards at sea, notwithstanding all company regulations to the contrary—there is always the danger of hæmoptysis to be feared. For some reason at present unknown to the writer, he is inclined to believe that the percentage incidence of hæmorrhage in these cases is higher at sea than on land, so that the added straining and retching of sea-sickness must not be ignored. It has been suggested that the unaccustomed but constant vibration experienced on nearly all ships may be the cause of hæmorrhage, being a purely mechanical disturbance and not a physiological one. The statement is based on the result of a series of autopsies performed at sea on cases of death from cerebral hæmorrhage. In each instance, the patient had been berthed in the after-part of the ship, where vibration is at its maximum. The theory is, however, somewhat difficult of proof.

Surgical conditions, such as herniæ, should be attended to, because some patients are in the habit of removing a truss when in bed. The efficacy of the truss should

be ascertained, and, if satisfactory, it must always be kept on. If not, a pad and spica bandage must be applied as soon as, or rather before, vomiting occurs.

Pregnant women are generally afraid of abortion taking place during or after sea-sickness. This, however, is more or less rare. Nevertheless, the mental effect of checking or diminishing emesis is very salutary. Accidental hæmorrhage is best treated with absolute rest in bed and opium in full doses.

Menorrhagia is not uncommon at sea: sometimes cases are sent for a voyage on account of it. In two instances rectal transfusion was deemed necessary on account of the severity of the hæmorrhage, sea-sickness occurring coincidently with the catamenia. Here, again, the question of unaccustomed vibration has been put forward as a possible cause, and may perhaps explain a certain number of cases.

So far no mention of hypnotism or psycho-therapeutics has been made with regard to treatment. There is an undoubted psychic element in sea-sickness, and its treatment by similar means on homœopathic principles is not beyond the bounds of possibility in theory. In practice, however, there are many obstacles in the way of a general adoption of this medium. Setting aside individual cases in which the psychic element is involuntarily a successful curative factor, the conditions under which it could be employed at sea are anything but favourable to a satisfactory result—that is, an immediate one, such as is eminently desirable.

The following case is interesting as an example of the involuntary and successful adoption of psychic means. A ship left Tilbury for Australia. While proceeding to sea a thick fog came on, necessitating anchoring in the river within half an hour of departure. It was perfectly

calm and the vessel absolutely motionless. About an hour later the surgeon was sent for to see a lady complaining bitterly of being sick. She had actually vomited. She was also unaware of the vessel being at anchor, and wondered how she would manage during the voyage, as she was such a bad sailor. As a matter of clinical curiosity, the surgeon did not enlighten her, but left, saying he would send some medicine. Presently another message came for him to see her again. The ship was still at anchor. This time he told her the facts. The patient jumped up indignantly, dressed, and went on deck; all trace of feeling or being sick completely vanished.

Referring to the general adoption of hypnotism, the main objection is that the patient at the time of trial is not in the frame of mind or body requisite for success. He is not in the position to concentrate on 'nothingness' sufficiently to allow the subconscious element of his nature to gain ascendancy over the material. This fact was very markedly impressed upon the author while watching the contortions of an ardent Christian Scientist, with a pale green complexion, fervently trying to prove the superiority of mind over matter. The futility of his endeavours was ocularly demonstrated on deck subsequently.

There is no doubt that much good could be obtained by its use prior to embarkation in suitable subjects, and also that the effect could be made permanent throughout the voyage by providing the patient with a medium for reinforcing it as occasion arose. But to endeavour to get a person already in the 'pensive stage,' or even further advanced in the throes of seasickness, to sit down quietly and submit to hypnosis is little short of attempting the impossible.

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Apart from the patient's intense desire for relief, there are too many distractions in the noise of the sea, the motion of the ship, and objects swinging about in the cabin, for this to be possible in the majority of cases. There is, of course, no objection to it being tried, and some relief might be afforded to the patient by the diversion caused.

Readers adopting the hypnotic process are warned to be on the lookout for any 'accident' which may possibly occur during its performance. Space, unfortunately, will not permit of further details being given; in fact, they are hardly required, as, unless it is employed prior to leaving, hypnotism offers so little in this respect.

With regard to the various mechanical appliances and contrivances designed for the prevention or alleviation of sea-sickness—swing-cots, vibrating and rocking chairs, compression-belts, eye-bandages, etc.—the statement made previously in reference to drugs applies equally to them. They are all beneficial in individual cases, but not universally so.

It remains to be seen whether, by diminishing motion, the general adoption of the gyroscope to the larger ships will not prove of more service to sea-sick humanity than the whole Faculty and Pharmacopœia combined. As the size of ships increases, there is naturally a greater steadiness and less disturbance of equilibrium at sea. This results in a marked decrease in the number of cases of sea-sickness.

As already mentioned, much can be done to relieve symptoms, but it is the writer's conviction that as long as the psychic element cannot be completely eliminated as a causative factor, there is not much outlook for a universal 'cure.' In all probability 'air-sickness'

will be puzzling therapeutists long before its maritime prototype is a thing of the past.

A brief résumé of this chapter may not be amiss.

First, place the patient in the recumbent position—preferably on deck in the fresh air, having previously paid attention to the state of the bowels. Patients *should be kept warm at all times*, whether on deck or below. If on deck, they should breathe slowly and deeply.

Look or inquire for any concomitant pathological condition likely to be affected by vomiting. In women remember the possibility of gynæcological disorders.

Feel the pulse as routine practice for cardiac or circulatory complaints.

Allow any article of food which may be asked for ; administer it hot or cold, according to choice, little and often.

If food is declined, *insist on something liquid being taken*, even if it is only water. This is least likely to cause vomiting.

If vomiting is persistent and severe, then exhibit some one or other drug or combination of drugs mentioned, but only resort to them after other measures have failed. Do not persist with any one line of treatment too long. If six or seven doses are apparently useless, change the mixture.

CHAPTER IX

MEDICAL AND SURGICAL PRACTICE

GENERALLY speaking, practice at sea may be said to be confined chiefly to diseases of the alimentary tract, surgical incidents or accidents, exanthems, or any other infectious disorder shipped at a port of call, and, lastly, invalids of all sorts and conditions, functional and organic.

Before describing methods of treatment, a few remarks on the non-clinical aspect of the work at sea will not be out of place for the tyro, and are therefore given somewhat fully. The various matters are discussed without any attempt at classification further than the index at the end of the book.

Stethoscopes.—In the first place, it may be mentioned that binaural stethoscopes are practically useless on board ship for purposes of ‘fine diagnosis,’ except under most favourable conditions. These, it is true, are increasing with the size of modern vessels. Direct auscultation or a wooden monaural stethoscope is more reliable and satisfactory. At sea there is the continual throb of engines, main and auxiliary, the straining of the ship and the perpetual flow of condenser discharge; in port, the rattle of winches working cargo, the shouts of coolies or stevedores at work and sundry other noises. All of these cause a confused

rumble which requires much practice to eliminate successfully. The more delicate chest-pieces—phonendoscope, microphone, etc.—only accentuate the difficulty and should not be used. To avoid making a grave mistake with possible serious consequences, the author always refrains from giving a definite diagnosis, mentioning the foregoing as his reason.

Infectious Diseases.—When an infectious or contagious disease develops, too much care and attention to detail cannot be expended in instituting and maintaining an immediate isolation of the patient. An epidemic disease will sometimes attack a ship's whole complement of passengers and crew before one is aware of what is happening. This is very much the case in those most infectious prior to the appearance of a rash or other definite symptom. Passengers, also, will not be slow in complaining of any remissness, real or apparent, on the part of the surgeon in dealing with such cases.

Naturally an infectious case will be landed at the first opportunity, provided circumstances indicate. There are times, however, when the technical reasons for so doing may be outweighed by the practical, and the surgeon must be guided by local conditions. The following is a good instance of this. While surgeon of a vessel engaged on a long voyage, a solitary case of scarlet fever developed shortly after departure. The patient was immediately isolated, and also a steward with him to look after his wants. Isolation was complete and entirely satisfactory. By the time the first port of call was reached, the patient was to all intents perfectly well, the case having proved very mild, although desquamation was not complete. The contagion was well under control and of no danger to others.

From a technical standpoint such case should have been landed, but practically there was no reason for this. To have done so would have meant a considerable delay, as the ship was lying out in the harbour. The attendant would also have required landing, or being kept isolated on board as a 'contact.' Publicity to the case would have resulted, and nothing tangible would have been gained. As it was, the patient and attendant remained isolated in hospital for the rest of the voyage; no one outside of certain officials knew anything about the case, and the company was saved a considerable and unnecessary expense.

The more modern ships all have special isolation hospital cabins, separated from the others, into which infectious cases can be placed. When this is not the case, or when they are already full, a part of the deck must be screened off from the rest and converted into an emergency hospital. The best place for this is as far aft as possible, taking into consideration the subsequent handling of the ship when entering port, so that, except with a 'following breeze'—rare, as a rule, at sea for any length of time—all air-borne infection passes directly over the stern. The whole width of the deck should be included, so that there will always be a lee-side over which dejecta, etc., can be thrown without removal from hospital limits.

If weather conditions do not permit of the deck being used, then a block of cabins must be similarly shut off by the water-tight doors of that section being closed, and its emergency exit used as a hospital entrance. Every ship will probably have some place or other which could be converted into a temporary hospital, and the surgeon must use his own discretion and consult with the commander as to the best site. For single

cases the 'flying bridge,' if there is one, or a lifeboat can be screened in.

A free display of carbolized sheets and disinfectants carries more moral than medical weight with those so far unaffected. The mental effect of an epidemic disease is naturally far greater among a collection of people having nothing to do all day but eat, sleep and think about themselves than among the members of the crew, busily employed in the performance of their daily duties.

Although cases of ordinary sickness on board should be kept as secret as possible, where an infantile disorder exists, and there are many children on board, the fact is better made public. Parents can then take whatever extra precautions they may consider necessary in addition to those ordered officially. By experience it has been shown that mothers prefer to know of any danger threatening their little ones, rather than discover the fact for themselves when a playmate is lost sight of, and said to be ill, the nature of the illness invariably leaking out. The tension awaiting development of symptoms in their own children is apt to cause unpleasant discussions, etc., if this has not been done and everything kept *sub rosa*.

In connection with rashes, a wrinkle in diagnosis, given the author by a medical officer of the port of London, and which has come in very opportunely on more than one occasion, is here mentioned. Where any doubt exists as to whether a rash is that of variola or varicella, it can be determined at once by selecting an area of skin on the trunk, preferably the dorsum, and one of similar size on an extremity, and comparing the number of vesicles in each. If the case is variola, then the greater number will be found on the extremity area ; whereas,

if varicella, the trunk area will show the greater number. Where there is not much difference, suspect variola, and act accordingly. The above fact does not seem to be well known, and the reader can imagine what his own feelings would be if the verdict had to be delayed, and ultimately proved to be variola.

Quarantine.—In the matter of quarantine restrictions and obtaining free pratique for the ship there is one golden rule to be observed. Never, on any account whatever, attempt to mislead or obstruct the health officials at any port. If there is any suspicious case on board, or one likely to give rise to suspicion on their part, it should be declared and exposed for examination; otherwise the consequence to the ship may be serious. In some ports the surgeon is liable to heavy fine and possible imprisonment for an offence of this nature.

Port medical officers are vested with full power to do what they like in the way of detaining or delaying a ship, and it is useless to attempt to bluff them. The commander is always anxious to get his ship berthed and 'entered' as soon as possible after arrival, and occasions may arise when a little sharp practice on the surgeon's part is suggested. This must be decisively and distinctly objected to. The owners will neither help nor thank the surgeon who has got himself and the ship into bad odour through trying to further their interests at the expense of his own professional reputation.

As the quarantine restrictions of different countries vary from time to time, it is impossible to state here exactly what diseases are notifiable. The surgeon must be guided by the questions on the local health form. In the main it is better to declare all major cases of sickness. Tuberculosis is now almost universally notifiable.

At English ports plague, cholera and yellow fever are the only diseases which compel a ship to go into quarantine. All other infectious cases are simply removed from the vessel by the local health authorities, as apart from the actual port authorities. Under these circumstances the ship is treated as an 'infected house,' and comes within the jurisdiction of the Public Health Act.

In the Commonwealth of Australia, where compulsory vaccination does not obtain, a sharp lookout is naturally kept for cases of variola, in addition to ordinary infectious conditions.

Homeward-bound ships via the Suez Canal are all subjected to a rigorous medical inspection at Suez for plague before being allowed to enter the canal. This is done in accordance with the articles of the Venice Convention, arranged among the Powers of Europe to prevent the entrance of plague into Europe. A large medical staff boards the ship on arrival, and includes a lady doctor for the closer examination of women and children. The groins and axillæ of all coloured persons are palpated, also those of others who may look ill. Here again, plague, cholera and yellow fever are the only diseases which will detain a ship; others, although notifiable, and which must be shown, do not delay her.

A death during the voyage may always be expected to give rise to a little difficulty in obtaining pratique, and a full record of the case should therefore be drawn up.

Of the red-tape and crass futility of the usual sanitary precautions taken at most foreign ports before granting free pratique, especially the Continental and Mediterranean ones, no mention need here be made. One or two personal experiences will soon satisfy readers for themselves. Three or four bottles of corrosive sublimate crystals are poured down the bilges. Occasionally it

is also put into the drinking-water, unless careful supervision is exercised. A few parcels of soiled linen, composed mainly of handkerchiefs, odd socks, and towels, are taken away to be fumigated, and returned to the ship stained and spoilt. This done, the vessel is then declared officially free from infection, and receives a certificate to this effect for use at subsequent ports of call. The whole performance is conducted by the port surgeon and his staff of sanitary satellites amid much verbiage and gesticulation. Needless to add, the ship is heavily mulcted in dues for this operation.

Method of Receiving Free Pratique.—At all ports an incoming ship is looked upon as an 'infected vessel' until inspected and passed by the port surgeon or his deputy—perhaps an officer of Customs. When entering a port, the 'Q' flag, or 'Yellow Jack,' must always be flown until the vessel has received pratique.

It is well for the surgeon to satisfy himself that this is done. Some port authorities easily stand on their dignity at an implied insult if the flag is not flown, and let the ship await their leisure before coming off to clear her. Strictly speaking, of course, the flying of a flag is no part of the surgeon's business; but as it is directly connected with his department, he should see it done, and send a reminder to the bridge if it appears to have been forgotten. Occasionally, in the bustle of entering port, this is omitted by the powers that be, and the ship is delayed thereby.

In English ports no special flag is flown on entering unless there is a specific case on board, in which instance the 'L' flag must be hoisted.

Pratique having been granted, it is the surgeon's duty to report the fact immediately on the bridge to the commander, who will order the 'Yellow Jack' to

be lowered. The ship is then free to communicate with the shore.

All large steamship companies have an official form of health certificate. Most foreign and colonial port authorities require this to be supplemented by one of their own. In most instances the commander is required to sign such document in addition to the surgeon. A stock of these should be obtained and countersigned by the commander at the commencement of the voyage or the night previous to reaching port. By doing this much delay will be saved, and, moreover, most commanders object to signing documents while engaged in entering port.

Certain official data are always required by the inspecting health officer, and the surgeon should have these in readiness on a slip.

The usual particulars are as follows :—

Name of ship	Official number
Net tonnage	Nationality
Name of commander	
Number of passengers landing in first, second, and third classes .....Total.....	
Number of passengers in transit in first, second, and third classes .....Total	
Number of crew in deck, engine-room, and victualling departments .....Total	
Dates of departure and ports of call during the voyage.....	
Dates of death and causes.....	
Births.....	Nature of cargo

All that is required on arrival in most ports is the transfer of customary certificates and bills of health to the boarding officer, who will thereupon grant free pratique, if there is nothing to prevent him. In France and Italy an incoming ship must send a boat ashore,

flying a yellow flag, to obtain pratique. The surgeon and purser as a rule go in the boat. In most other countries the authorities come off to the ship. They are met at the gangway by the surgeon, and perhaps the purser. All the necessary documents should be at hand to save time in this matter. The bills of health are generally kept with the rest of the ship's papers by the purser, who delivers them to the surgeon when required.

The granting of free pratique is a mere formality at some ports. In others, however, it is a source of vexatious, and perhaps unnecessary annoyance to all on board. Passengers are turned out of their bunks—ports are generally reached in the early morning—and the crew mustered, only to file past the port surgeon and answer a roll-call. At the conclusion, the inspecting surgeon is little wiser as to the physical condition of all he has seen than he was, and everywhere tempers are tried and short.

With a large number of passengers on board this ordeal is apt to be a great labour to the surgeon and the ship's staff, as some are sure to be found who resent the inspection. These will deliberately hide themselves in bathrooms and lavatories, etc. After much delay and many false counts, they have to be rounded up by gangs of stewards, and sent to the place of inspection.

Two or three days prior to arrival at a port where a muster of all souls is required a notice explaining this fact should be put on the official notice-boards. It should be worded in such a manner as to be clear to all that this muster is absolutely necessary and cannot be evaded; and any person objecting to it is only delaying the whole ship and keeping passengers from going ashore. Port health officers have been known actually

to leave a ship halfway through muster because some passenger refused to turn out, and proceed to another ship just entering the port, clear her and then return to a sadder and wiser company.

Although such a measure is unnecessarily hard upon those not offending, still, at the same time, the action of the others is tantamount to insulting the port officials, who are only carrying out their duty.

Where possible, the most likely offenders in this direction should be interviewed, the case definitely laid before them, pointing out that the refusal to comply with the law of the land will subject them to the odium of all other passengers, whose liberty is needlessly interfered with thereby. Even this in some instances is unavailing, and nine times out of ten the recalcitrant is booked to leave the ship at that port, and hence does not care what happens. In Appendix VI. will be found specimen health certificate and muster notice (p. 346).

Lunatics.—Now and again a person of unsound mind will figure on the passenger list, and requires to be dealt with very cautiously as regards restraint, suicide, etc., pending arrival at the next port, when he must be landed. People of eccentric habit, not to say mentally unsound, are frequently sent to sea ‘for a change.’ Occasionally they are accompanied, but more often not. These cases are always a source of worry to the surgeon, and of annoyance or amusement to their fellow-passengers, until everybody gets accustomed to their presence on board, and leaves them alone. With such ill-defined cases no specific action can be taken, further than having them quietly and continually watched, and acting as circumstances indicate. As a rule, if left to themselves and not annoyed by others, they will be perfectly harmless, and reach their destination safely, much to

the relief of the ship's officials. Attendants told off to look after lunatics of suicidal tendencies must always be warned of this fact ; otherwise the company are liable for damages in the event of suicide occurring (*vide* Roderick Mackenzie *v.* Allan Steamship Company and Another).

With regard to cases of acute mania developing during the voyage, the question is not so easy of settlement. To confine a lunatic may only help to aggravate his condition and make matters very lively ; while to allow him to be at large may be a source of danger to others, as well as to himself, in addition to imposing a difficult and unending strain upon those told off to look after him. However well watched, a lunatic may be over the ship's side before anyone can stop him ; and then people begin to talk about what should have been done.

Few ships have anything like a padded room, and where such is required an extraordinary cabin must be stripped, the port secured in such a way as to give plenty of air, without any opportunity to the patient of climbing through it. All the fittings should be removed, and nothing but a mattress left, so that there is no danger of the person hurting himself or his attendant.

Great care and discretion must be exercised before putting a lunatic under restraint unless, of course, an independent certificate can be obtained on board, or if, from previous behaviour of the patient, it is warranted for others or himself. When such is applied, the commander must be informed, the facts entered in the official log-book, and the statement signed by both. Naturally, the case will be landed at the first opportunity. In doing so the certificate should be very carefully worded, to avoid subsequent legal action for

unlawful detention or breach of the passage contract (*vide* Appendix).

Alcoholics.—The sale of liquor to those in the habit of drinking to excess can be restricted officially by the commander or the surgeon of the ship—by the former on the grounds of disturbing the peace and comfort of others on board, and by the latter for medical reasons.

Repeated drunkenness on the part of a passenger is an offence which renders him liable to summary ejection from the ship, under certain conditions, after he has been previously warned.

When a person's supply of liquor is officially stopped, the stewards and all members of the crew should be cautioned against supplying it surreptitiously, and any man found out should be made an example of. Also, the bar-keepers in various parts of the ship should have the person pointed out to them, as frequently a man whose liquor is stopped in his own class will attempt to obtain it elsewhere, and succeed if this is not done.

The greatest difficulty in these cases is always raised by the man's fellow-passengers. They seem to think he is being ill-treated, and the individual liberty of the subject interfered with. When any obstacle of this nature is found, the main offenders should be taken aside, and matters explained to them. If this fails, they should be brought before the commander, who will deal with them himself, according to his powers. In extreme cases it may be necessary to close down all the bars in the ship, which soon brings people to their senses.

Application of restraint in acute delirium tremens requires entry in the official log. When the patient has recovered sufficiently to comprehend its import—the entry should be read over to him.

In conclusion, it may be stated that it is practically impossible to keep a man from liquor at sea unless he is locked up in a remote cabin or kept under continual supervision.

Certifying Drunkenness.—As on land, the surgeon will be called upon to certify as to the strict sobriety or otherwise of persons brought before him by other officials on the charge of drunkenness. On board, such instances will probably be of more frequent occurrence. He may be called on behalf of the 'prosecution,' or by the 'accused,' and, as he is the only and final court of appeal, great care should be taken to deal justice.

In most ships the naval régime is adopted—that is, a man is either drunk or sober: no intermediate degrees of either state are recognized. If 'drunk,' he is liable to be punished according to the Merchant Shipping Act. From a medical standpoint this is somewhat harsh and arbitrary, but the risks attending the adoption of milder methods are too great to be lightly entertained. Hence the surgeon must be familiar with the signs and symptoms of alcoholism in its varying degrees.

The points to look for as guides are: Flushing of the face, with possible dilatation of the pupil in the less advanced cases; some quickening of the pulse, although this is most misleading in the absence of definite knowledge of the victim's normal pulse-rate; varying degrees of mental exhilaration; and, finally, loss of co-ordination in all respects.

While the foregoing are all undoubted factors in the diagnosis of acute alcoholism, no single one should be taken as conclusive evidence. The degrees are so vastly different in different subjects, and also in the same subject at different times with similar amounts of

alcohol. One man, while unable to articulate properly, may be capable of performing most delicate feats of co-ordination. Another may be just the reverse.

Hence every known test should be employed in each case before certifying a man as 'drunk.' Facial aspect and general appearance, although indicators that the person is *not* sober, should not be allowed to carry too much weight. Surgeons will be expected to give a straight-out verdict as to 'drunk or sober'; no 'worse-for-liquor' opinions or other attempts to graduate the offence will be accepted, on account of the legal points in question. It is almost the only instance in maritime medical practice where professional opinions and methods must subordinate themselves to local conditions.

Needless to add that, in the more profound cases, coma, etc., the 'drunk or dying' problem, and all entailed thereby, must be duly considered, as well as the principle of 'tempering the wind to the shorn lamb,' fully made use of in milder cases among passengers.

Births at Sea.—Every birth on the high seas in a British ship is registered on a special form (*vide* Appendix), and, finally, on arrival of the ship back in England, it is entered in the register of the Diocese of Stepney, as a portion of which all British ships are recognized.

Deaths at Sea.—Whenever a death occurs at sea, it is desirable to dispose of the body as soon as possible, consistent, of course, with due regard to the feelings of relatives and friends on board. The presence of a corpse has a most depressing effect upon all, and the sooner the burial the better. The time at which this rite is to take place should be kept concealed from all not intimately connected with it, and should be selected so that the majority will be down below: meal-time, church-time, or in the early hours of the morning.

The official form of certificate is given in Appendix VI. In addition, an entry is made in the log-book, and death reported to the British Consul at the first port of call.

As soon as death has occurred, the surgeon should lock up the room, taking charge of the key, and report the time of occurrence to the officer in charge of the bridge. Subsequently, it is part of his duty to be present when an inventory of effects is made.

If there is any possibility of death occurring, and there is another medical man on board, he should be asked to meet the surgeon in consultation as early as possible in the case. It makes matters less uncomfortable, and seems to divide responsibility.

If a death occur while a ship is lying in a port of call, the body must be landed ; but if this event takes place shortly before the sailing time fixed upon, and the relatives are neither anxious nor able to pay for a funeral on land, it is better to proceed to sea and perform the burial shortly after. The circumstances, however, will be the best guide, and, as a matter of fact, the decision rests with the commander.

A letter containing pertinent details must be sent home to the company by the surgeon at the first opportunity after a death has occurred.

Embalming.—The majority of ships trading across the Atlantic Ocean carry one or two metal caskets for the conveyance of the bodies of saloon passengers deceased on the voyage. Prior to sealing these up, the body should be embalmed. Many ships are supplied with proper materials for this purpose, including a special embalming fluid.

In the absence of appliances, etc., the simplest method is to cut down on the femoral and brachial arteries of each side, and inject a solution of 1 in 500 per-

chloride or 1 in 1000 formalin. As there are no facilities for complete disembowelling, the peritoneal cavity should also be injected. This is best done through a superficial incision of the abdominal parietes. The site of incision is pulled to one side as far as possible, to act as a flap-valve, and the cavity punctured with a needle. While injecting, the needle should be moved about in different directions to insure a thorough distribution of the fluid. At least 2 pints should be used for the abdominal cavity alone, and another pint or so for the rest of the body.

An aspirator needle coupled to an aural syringe by rubber tubing makes an excellent extempore apparatus, and the whole operation can be conducted without undue disorder. When the process is completed, the skin incisions are firmly stitched up.

A pair of rubber operating or post-mortem gloves should be supplied for use in such cases. They should be examined from time to time, and kept well dusted with Fuller's earth or magnesia. A good method of preserving them is to keep them immersed in water in a wide-mouthed pickle-jar.

A fee of five to ten guineas is chargeable to the relatives for this service. The surgeon is also expected to remunerate the person who seals the casket up.

In the China trade all 'coolie' passengers dying on board are embalmed, and afterwards placed in light wooden coffins, which are carried on deck in one of the ship's boats. As it forms part of a Chinaman's creed to be buried in his own country, they are naturally very particular on this point. The same earnestness, however does not apply to the payment of an embalming fee, and the surgeon must see that he receives it beforehand.

After a body has been embalmed, it must be sealed up on board in a metal casket. Although this process

is no part of the surgeon's duty, he should be present in order to be able to make an affidavit as to the contents of the casket, in case such is required by the Customs authorities at the port of disembarkation.

Occasionally the body of a deceased passenger will be returned to the port of departure on the next voyage, or by some other vessel. In these cases the surgeon is called upon to make an affidavit before a consular officer of the country to which the body is consigned before it can be shipped. The statement usually required is to the effect that the casket contains only the body of the deceased and nothing else, the reason for this being to avoid the smuggling of goods, etc., under such a pretext.

Before leaving their ships on arrival in home-port, surgeons should find out when and where they will be required to make such a statement, in order to save being recalled, or having to break private engagements for this purpose.

Where wireless telegraphy is installed in a ship, much time and trouble on arrival will be saved by notifying the office and relatives beforehand as soon as possible. When the vessel arrives, undertakers, etc., can then be at hand to meet her.

The legal aspect in connection with the burial of the body of a saloon passenger deceased at sea is not definitely clear at present. A case occurred in which relatives are suing a steamship company trading to the United States for 50,000 dollars, or £10,000, damages in respect of a body buried on the high seas. Verdict against the company has been given in two courts of the United States, and a final appeal is pending. If adverse to the company, a strange precedent will be established. A Bill is said to be before United States Congress making it obligatory for a steamer to convey

to land the bodies of *all* American citizens deceased during the voyage. Should the measure become law, in the future the purchaser of a passage across the Atlantic will be entitled to an option on a casket and free embalming in lieu of uncompleted voyage. With all due deference to the feelings of friends, such a ruling seems to impose a most exacting duty on ship-owners. A vessel can hardly be expected to carry to and fro a stock of empty caskets sufficient to meet the demands caused by the possible demise of a number of her passengers. On the other hand, an occasion is bound to arise sooner or later when the available stock is used up, and a call for yet one more is made. Is the ship to be held responsible? It may seem Gilbertian, but on this line of argument the state-room of the passenger ship of the future may not unreasonably be found fitted with an empty casket, in addition to the customary life-belt for each occupant.

The author may be accused of undue levity in a matter of such grave import, but, at the same time, a contingent liability of £10,000 for every passenger buried at sea is a serious matter for steamship companies catering for passenger traffic. In the near future a skilled embalmer may figure among the multifarious non-maritime occupations to be found on the crew-list of a modern liner.

Medico-Legal Points in Connection with the Passenger Trade.—There are one or two important points in connection with the carriage of passengers which affect the surgeon from a medico-legal standpoint, and are briefly mentioned. An abstract of Part III. of the Merchant Shipping Acts will be found in Appendix X.

Certain countries, such as the United States of America, Dominions of Canada and New Zealand, the

Commonwealth of Australia, Cape Colony, and, since 1906, the United Kingdom, have Immigration Restriction Laws. These are applicable to passengers who are mentally or bodily unsound, or are destitute, or belong to a race whose members are not allowed to enter the country, and prohibit all such from being landed.

These laws apply only to steerage passengers in some countries, and to all classes in others. Again, in some the law is more honoured in the breach, whereas in others it is enforced to the utmost limit, with a liability to heavy fine of the ship contravening it.

Steerage Passengers.—It is customary for all steerage passengers to pass the 'ship's doctor' before leaving the country. This is done generally as they are embarking, or in a place set aside for this purpose, the day before sailing, according to the custom of the company and the laws of the country to which they are bound. Such 'passing at the gangway,' which is conducted in conjunction with a medical officer appointed by the Board of Trade at the port of departure, can only be superficial at best of times.

As passengers are streaming up the gangway, loaded with hand-baggage and other impedimenta, time, as a rule, will not permit of more than a rapid scrutiny of faces for rashes, etc., or any other symptoms and signs pathognomonic of disease. With regard to children, all except actual infants in arms should be made to walk past the surgeon. If this is not done, all kinds of deformities and disabilities—infantile paralysis, talipes, etc.—will be enabled to get on board undetected, and cause trouble subsequently.

The duty of the Board of Trade emigration official consists solely in preventing the embarkation of any person suffering from an exanthem or other disease

likely to be a source of danger to the community. The onus of allowing all other pathological conditions to sail rests entirely with the surgeon of the ship, whose decision on this point is absolute. He has, however, the power to refuse a passage to anyone of this class, if he thinks circumstances warrant it, either on medical grounds of unfitness to travel, or by reason of the person being proscribed the country. A certificate to this effect will be required.

Should an 'undesirable' be discovered after the ship has sailed—and this is usually the case—the surgeon must confer with the commander as to advisability of landing such at the first port of call for return to his departure port, or of carrying him on. If circumstances do not permit of the former, then the passenger must be carried on, detained on board at the commander's responsibility, while the ship is in prohibited waters, and finally brought back on the homeward voyage. During a rate-war across the Atlantic numerous instances of such arose. On arrival of the first ship—a German—nearly 40 per cent. of her passengers were rejected for medical and other reasons, having to be detained at the expense of the company, and finally returned to Germany.

The cost of maintenance and return of a steerage passenger landed at an intermediate port of call for reasons of health is chargeable to the owners through their agents, to the extent of eighteenpence per diem while on shore. The return or forwarding of such is also part of the company's duty. Therefore, those noticed to be ill on embarking, unless only mildly so, should be rejected. Pregnant women in whom delivery seems imminent should also be told to wait over, if possible, as maternity work at sea is unsatisfactory.

for all concerned. Some women seem to make a point of travelling at this time, presumably with a view to obtaining accouchement gratis.

Tinea of the scalp in members of a large family on the point of emigrating is a matter requiring careful consideration, especially so if the voyage is at all long. The condition is decidedly contagious to others, although not actually one of life and death. It is very hard to exclude a whole family on account of two or three members. As for the victims themselves, they can hardly be placed in *durance vile* for six weeks or so, particularly during the tropical portion of the passage, and at the same time they cannot be allowed to run loose among all the other children. To keep them on an isolated part of the deck is next to impossible on most ships. Where feasible, the author makes it a practice to try to temper the wind to the shorn lamb, thoroughly explaining all details to parents, and obtaining their consent. If there is any hesitation on their part as regards compliance, they should be rejected. If accepted, then the patients must be made to wear skull-caps continuously, any breach of this regulation being followed by rigid isolation in hospital.

Saloon.—Printed on the backs of saloon passenger tickets will generally be found a clause to the effect that the ticket is only issued subject to the approval of the surgeon on board the steamer. Should a passenger embark in ill-health or fall sick during the voyage, and refuse to be landed at the next or any other port before his original destination is reached, the ship can only land that person compulsorily if he be suffering from some disease dangerous to the community in general—not otherwise, as the clause is not recognized in a court of law, and the companies are liable to an action for breach

of contract if the passenger is so landed. To make it operative, the clause should be enforced at the gangway, or before the vessel sails.

It is extremely doubtful, too, from what point of view a sympathetic jury might look upon a case of this nature—the inconvenience of the individual or the care of officials for the benefit of the other patrons of the ship at the expense of one.

The surgeon is occasionally confronted with the probability of a death occurring at sea, and the certainty of refusing proffered passage money. Further, in a full ship, with not a cabin to spare, a bad case of bronchiectasis, or some equally noxious complaint, will spoil the whole passage for the other occupants. Nothing need be said about the rest of the passengers, who will immediately appeal to the purser, only to be referred to the surgeon. It is upon him that the whole brunt of their complaints will fall, he being ‘ ’twixt devil and deep sea.’

One or two discontented passengers will do more damage to the reputation of a ship than can be counter-balanced by the goodwill of a hundred contented ones. The latter will rarely say anything about the comforts of a ship unless asked, whereas the former will go out of their way to ventilate grievances, real or imaginary. Hence the surgeon must not only consider the interests of the sick, but also those of the ordinary passenger.

In these days of keen business competition between various lines it often requires fine discrimination on the part of the surgeon to decide for the best. He should rapidly and accurately sum up the case, make his decision, and, if doubtful, lay it before the commander, managers, or agents, carrying out whatever orders he may receive on the subject.

Visiting Lady Patients.—All ships have a regulation, written or otherwise, which prohibits the surgeon visiting lady patients in their cabin except in the presence of a stewardess. The wisdom of such is perfectly obvious, and requires no comment; observing it, however, is sometimes a matter requiring delicate handling and tact.

Occasionally ladies will be met with who refuse flatly to have the stewardess present when the surgeon makes his visit. In these instances the latter should remain firm, insisting on the presence of the stewardess, the rule being mitigated by allowing her to stay in the alley-way outside the room, but within call. As an alternative he may suggest the presence of a friend or other lady passenger. Failing that, he should report the fact to the commander at once, and on no account whatever should he remain in the cabin alone with the patient. Several actions have been threatened, and some have taken place, through neglect of this precaution. Space and other reasons forbid further mention on this point, and there is no rule laid down for the guidance of the ship's surgeon which should be so strictly and consistently observed.

In the event of the patient paying a professional visit to his cabin, a third party should always be present. If not, then a stewardess should be sent for.

Stewardesses.—Some stewardesses, especially the old hands, are sometimes apt to give advice on the diagnosis and treatment of cases, quoting former ships' surgeons as their authority. This can all be quietly listened to and calmly ignored, without any show of open resentment or professional dignity. The surgeon should always endeavour to keep on pleasant terms with stewardesses without loss of prestige, as they have it in their power to cause or save him a great deal of un-

necessary annoyance, without his being able to defend himself.

It should also be mentioned that, rightly or wrongly, the stewardesses are *not under the control of the surgeon*, like nurses at a hospital, the purser or chief steward being their superior officer. However, by tact and good management they can always be induced to do what the surgeon cannot very well order them to carry out. Further, he will always get early information as to infantile or other illness, as they have greater opportunities than he of being with passengers, and are, as a rule, first to notice symptoms.

Nursing.—The question is often raised as to whether large ocean steamers ought not to be compelled by law to carry a trained hospital nurse as part of their crew. It is the writer's opinion, and that of many colleagues with whom the matter has been freely discussed, that a trained nurse on board is not absolutely necessary. The occasions on which her professional services would be required are few and far between, taking a general average of voyages. In these cases day and night nurse would probably be wanted.

The endeavours of some companies to solve the nursing problem by engaging trained nurses as stewardesses is open to three objections. The first is that, when required as a nurse, her duties as stewardess must naturally be temporarily in abeyance, and other passengers suffer thereby. Another objection, which may be fanciful on the author's part, is the fact that the trained-nurse stewardess may perhaps be inclined to assume the rôle of deputy-assistant-surgeon. The final one is that, under existing conditions, stewardesses are not under the control of the surgeon, and until such is the case there is too much ground for possible friction

with other officials on board. The question is one which steamship companies have not as yet settled. Further comment on this point is unnecessary.

With regard to trained nurses who may be passengers on board, the author's experience has not been a pleasant one. In a difficult case he prefers the assistance of an untrained person, whom he can trust to carry out instructions implicitly under his directions, such as the stewardess, to that of a highly-trained professional nurse not under his jurisdiction.

There is a constant tendency in persons trained to a certain routine to carry this out wherever they may be. Practical experience has shown that as yet it is quite impossible to carry out the detail of sick-nursing on board ship in the way it is done in hospital or home on land. Circumstances are entirely different, and the occasions on which the author has come into conflict with trained nurses who, being passengers on board, have volunteered their services, have all been over the matter of routine.

If the friends are desirous for a volunteer nurse to step in, the author is always agreeable, but on one condition only: The nurse must be willing to assume the professional relations ordinarily existing between medical man and nurse elsewhere. Unless this is quite understood by all parties from the outset, the results usually following on the interference of a third and independent person may be confidently expected. This is not meant to imply anything derogatory to trained nurses, but only to indicate a very possible source of unpleasant episodes to the inexperienced ship-surgeon.

There is no doubt whatever that, on a full voyage, an extra stewardess might be carried to advantage for

nursing duty only, if necessity arose. The number of stewardesses carried in any ship, however, is a matter for the company to decide upon. There is no law by which ships are compelled to carry a stewardess at all, except under Part III. of the Merchant Shipping Act, which requires the presence of a 'matron' in the steerage.

If a permanent trained nurse is considered to be necessary, the matter might be solved in the following fashion. A nurse would sign articles as 'nurse' at a nominal rate of £2 or £3 a month. She would be directly under the orders of the surgeon. She would wear a distinctive uniform, be berthed alone, and take her meals either in the second cabin or in her room. Stewardesses would not be under her orders, and she would have to work quite independently, but in complete harmony with them. When her professional services were required by saloon passengers, she would be entitled to demand and retain a fee, the amount of this being definitely fixed by the company. In the case of steerage passengers, her services would be part of the duties of her engagement, and rendered gratis. Care of the ship's linen might also be placed among her duties. In the event of more than one demand for attendance upon saloon passengers being made at the same time, the gravity of the case, as decided by the surgeon, would settle the question. Additional scope would be offered to a certificated masseuse.

There are doubtless many trained nurses who would be willing to spend a year or two at sea under these conditions, to the advantage of the company, passengers, and themselves; in fact, a trained nurse would be an inducement for invalid saloon passengers to travel in a ship carrying one. One or two companies which

cater for invalids have already instituted a nurse as part of the ship's régime. Typists and stenographers, Marconi telegraphists, etc., are already found on some of the large English liners, and there is no reason why the trained nurse should not follow suit; but it must be purely as a nurse, and not a combination of nurse-stewardess.

Care of Patients.—It may seem somewhat superfluous to draw attention to the fact that patients confined to bed will require to be washed; but unless those told off to look after the sick are warned about it, the fact may not strike them. It is not pleasant for the surgeon to be asked by a sick man if he cannot have a wash! Yet such is quite liable to happen. He must also see that bed-linen is changed, etc.; in fact, he must assume, if not actually perform, the duties of nurse in all cases, unless, of course, there is a nurse in attendance.

Disinfection and Fumigation.—The disinfection and fumigation of a ship presents many obstacles as regards effectiveness, not the least of which being the difficulty of properly sealing up all apertures in a compartment to be so dealt with.

The orthodox method of fumigation is by sulphur dioxide, generated in the usual manner. This may be substituted by formalin. Neither of them, however, is satisfactory where minute vermin, bugs, etc., are concerned. In these instances the only efficient measure is to seal up the compartment thoroughly, and fill it with hydrocyanic acid gas. This method has one great drawback in its danger, but under proper precautions it should be practically eliminated. There is an appliance already on the market in which the gas can be generated outside the space, and therefore under control,

being led through tubes into it. The alternative is to pour an acid on cyanide of potash placed in a saucer in the centre of the space, immediately retiring and sealing up the door. All spaces so treated should have warning notices pasted outside them, and be left for twenty-four hours. Members of the crew and others should also be warned. Another twenty-four hours should be allowed to elapse after opening up the ventilation before anyone enters.

The surgeon should, if possible, be present when a space that has been fumigated by any means is first opened up, and should satisfy himself as to its safety to life in the usual manner—lighted candle, etc.

Disinfection is best performed by spraying the space with 1 in 500 or 1 in 1,000 perchloride solution after fumigation has been completed. Various disinfectant and antiseptic solutions can, of course, be used according to choice. If there is no spraying machine on board the bulkheads, etc., must be washed down. In extreme cases it may be necessary to inject the solution into the crevices and cracks in bulkheads by means of a hypodermic syringe.

Soiled linen, utensils, etc., should be first scalded with boiling water, and then allowed to soak in antiseptic solution of desired strength and choice for twenty-four hours before stowing away in the usual receptacles or places.

CHAPTER X

PRACTICE (*continued*)

Selection of Crew.—As a whole, the crew are, or should be healthy, any obvious case of disease being rejected when the men muster to sign articles prior to commencing the voyage. It is usual for the surgeon to be present on this occasion. The writer makes a point of examining in an anteroom all those men joining the ship for the first time before allowing them to sign. Each man is given a slip of paper to the effect that he has been passed, and none are engaged without it. In this way those medically unfit are prevented from joining, and the standard of health is kept at a high level, while the daily sick-list is confined more or less to what may be termed casual cases incidental to the voyage.

A 'medical crock' who has been allowed to join is a source of perpetual annoyance to all intimately connected with him, besides being a loss to the owners. As very few passenger-ships are away from home-port more than three or four months, the question of 'fitness' is not looked upon as being so important as in the case of candidates for the public services, and a rigid medical inspection is not customary. That this is quite a fallacy need hardly be stated, and the author strongly advises surgeons to examine crews more or

less thoroughly before joining. They will save themselves much trouble during the voyage at the cost of perhaps a few hours' work before sailing, and also insure a complement of men able to do the work for which they are engaged.

The recent application of the Workmen's Compensation Act to seafarers (*vide* p. 52), renders this examination all the more important. Men showing signs of old traumatism, such as fractures, operation scars, should be closely questioned and examined with a view to finding whether such may render them unable to perform their duties properly. There is also the question of possible subsequent injury to the old lesion to be taken into consideration in the event of a claim being made on account of it.

The author makes a practice of ordering 'shirts up and trousers down' in all cases, making one prepare while another is being examined. The following points should be looked to.

Teeth.—Mouths full of carious, suppurating stumps should be rejected, as the owners of such are in a chronic state of toxæmia, and will not be in a condition to do full work.

Heart.—The heart should be roughly auscultated at apex and base, especially in the case of firemen and trimmers. 'Stoker's heart,' which is a condition mainly of dilatation, with rapidity and irregularity of action, is not uncommonly met with. In mild cases it prevents the man doing his full share of work; in severe ones it totally incapacitates him. Speaking generally, it may be said that no collection of men will present so many cardiac irregularities *pro rata* as members of the stokehold, and yet it is rare to find a case off duty for this cause. Compensation in this class must

be well established, and against very large odds, both as to occupation and mode of life.

Lungs.—Both lungs should be closely examined for signs of tubercle. The subject of a 'weak chest' who has been advised to get employment on board ship is an individual to be detected, if possible, and rejected. Unfortunately, most cases of this type will not be discovered until the ship is away at sea, encountering variations of climate, etc., when they will be frequent attendants at the surgery for cough-mixtures and the like.

Scrotal Region—*Varicocele*.—So far the author has not met with a single case of malingering at sea in a man suffering from varicocele. Whereas, this condition is made a ground for rejection in examining candidates for the services on account of it; the possibility of this occurring must not be lost sight of. A marked case should be rejected, especially if the vessel is engaged in a tropical trade, because of the general relaxation of tissues which takes place under these conditions. Mild cases should be told to wear a scrotal sling when in hot weather (*vide* Appendix V.).

Hernia.—A hernia, unless easily reducible and fitted with an effective truss, should, as a rule, be excluded—in trimmers and firemen always. The reason for such exclusion in trimmers and firemen is the nature of their work, which is decidedly strenuous. While it cannot be denied that a man fitted with an efficient truss is perfectly well able to perform hard labour, yet there is also the possibility of an old truss breaking at sea through corrosion from perspiration. Under these circumstances there may be some difficulty in fitting a satisfactory substitute on board, and the man has to be laid off duty in consequence.

The writer was once made defendant in a case of

this nature brought into court by a Firemen's Union at the instigation of a *mauvais sujet*. The details of the case are too lengthy for mention, but the whole matter rested on a truss broken at sea. The charge was that of 'ill-treating and grossly neglecting' a 'seaman' suffering from rupture. When the case was heard, it fell through, and the position of the fireman was reversed from complainant to defendant, on a counter-charge, for which he received imprisonment. Therefore, on the whole, a case of hernia is best excluded, as it opens up such a large field of possible litigation, just or otherwise. It may be hard for the straightforward and honest employee to be rejected for this purpose, but the risk in those who are the reverse is too great to be undertaken lightly.

In connection with trusses, all those obliged to wear them whose duty takes them near the compass, such as quartermasters, should have them made of hammered brass instead of steel, owing to its possible action on the needle. The safety of the ship may conceivably be imperilled thereby if this is not done.

Gonorrhœa.—This condition, both acute and chronic, if present on examination, should be rejected, provided there are enough men to select from. On the other hand, there is absolutely no guarantee that a man will not acquire it after being passed; in fact, in many instances where men are passed some three or four days prior to sailing such is not infrequent.

Syphilis.—Syphilis, both primary and secondary, need not necessarily be excluded except in case of a member of the victualling department. In them it should always be rejected. The other departments can be dealt with according to the circumstances of having a sufficient number of men to pick from; otherwise to

exclude all would probably entail the ship remaining in port for want of a crew. A very early case should, however, be excluded in all departments, owing to the danger to other members of the crew living in the same quarters and in close proximity.

Legs.—The legs should be examined for existence of ulcers, varicose veins, etc., as the former are liable to break down, and the latter to become enlarged, rendering the man unfit for duty, while perfectly well in other respects. In fact, unless good scar-tissue exists, the man should be rejected in all cases.

When examining a prospective crew, the surgeon should remember that in no department of the ship is the work light, stewards especially being very hard worked. Their hours are long and irregular—in a large passenger-ship from about 5 a.m. to 10 p.m., with a possible snatch of sleep in the afternoon. In addition to this, they have to keep night-watches of two hours each between 10 p.m. and 5 a.m. in rotation. A further hardship is entailed in many ships by their inability to sit down for meals, having to picnic wherever possible—in pantries, galleys, and alley-ways. With all this they are uniformly civil and attentive, and undoubtedly the only inducement for a man to remain in this department is the money he hopes to earn in tips. As a class they are more run-down and unhealthy-looking than any other body of men on board, not even excepting the engine-room crew. The latter have watches of four hours on and eight hours off; sailors work watch-and-watch—four hours on and four hours off.

Alcohol, accidents, and venereal disease, with their complications, constitute by far the larger number of cases among the crew. Cases of the first, when re-

ported on the daily sick-list, handed to the commander at official inspection, are liable to have their pay stopped during such time as they are unable to work. It is doubtful whether this applies to disablement through venereal disease (*vide* Appendix IX.).

Malingering.—This is occasionally met with, more so among coloured crews, where more than the actual number of men required to do the work are carried, and one may generally be found to fill the vacancy caused by a sick man. On the other hand, with white crews their numbers are reduced to a minimum. Consequently, any man falling sick and going off duty entails extra work for the rest of the watch. As a rule, a man's watch-mates will not allow him to go off watch unnecessarily, although always willing to do his share of work if he is really sick. This forms an excellent check upon the professional loafer.

Stewards as a class rarely malingers, for obvious reasons, and will carry on their work until they drop. It is good practice when occasion arises to order a man of this department twenty-four hours' rest. Lack of sleep, long hours, bad living quarters, and a want of an open-air employment are the cause of much sickness and loss of vitality amongst them. Pulmonary tuberculosis is not an uncommon termination of their lives.

Firemen as a rule compose the majority of malingerers among white crews, with the idea of obtaining luxuries of diet and evading the heat of the stokehold and engine-room. They are fastidious yet greedy feeders, and as soon as three meat meals per diem cannot be eaten, they will complain of loss of appetite. Their usual complaint is backache, stomachache, and blood in the water, with occasional embellishments of

giddiness and vomiting. Internal cramps will also be reported; in fact, everything which is not directly tangible or visible. A slight burn or scratch will be magnified into a severe injury, which, however, will be reduced to somewhat smaller dimensions on subsequent occasions by free application of a 1 in 20 solution of carbolic acid.

From the ship-surgeon's point of view, the character of firemen depends very much upon the port they happen to belong to. Taking them all round, the Liverpool men are the best. They seem to belong to a special clan, and take a professional pride in their work; whereas the London fireman is one of the lowest types. The mere fact of him being in the stokehold is almost enough to stamp him as unemployable elsewhere. It is with this class of man that the surgeon must expect trouble, and he can generally rely upon getting it sooner or later.

After thorough examination, the author's practice is to wait for twenty-four hours, and then treat the man as a malingerer. It is waste of time attempting to argue the point with an undoubted malingerer. The surgeon may lose control of himself, and say things unfitting for his professional position. If a man persists in saying he is ill after ordinary reassurance to the contrary has failed, he should be treated as sick, and in such a way that he will find it more pleasant and profitable to be considered fit for duty. The use of light 'actual cautery' or battery are useful adjuncts for this purpose. Needless to add, all details in connection with cases of this nature should be fully 'logged.'

Members of the deck department do not mangle much as a rule. Amongst them it is considered *infra dig.*; moreover, most of them are drawn from a better

class of people than firemen, and a certain number belong to the Naval Reserve, and consequently are afraid of having their discharge-books endorsed as unsatisfactory. Any endorsement of this nature may lead to their dismissal from the Reserve.

As previously mentioned, stewards rarely malingers, and in many cases will not even report themselves sick toward the end of a passage, for fear of being laid off duty, and thereby losing their gratuity from passengers they have looked after during the voyage. One case occurred where a steward waited until all passengers had been landed, and then came to the author with a marked abscess of the appendix—one which was obviously palpable and almost visible on inspection. On being questioned the man admitted having had acute discomfort for the previous forty-eight hours.

The most satisfactory way of dealing with an undoubted malingerer is to watch him in bed in hospital, or some other place apart from the rest. His tobacco must be stopped, and diet restricted to a pint of milk, a pint of water-arrowroot (made without flavouring), a little dry bread, and water *ad lib.* for the twenty-four hours, having previously and personally administered an ounce or more of crude castor-oil. Very few will hold out for more than thirty-six or forty-eight hours, and there is every probability of the surgeon being called upon to treat a case of acute over-engorgement of the stomach after the man returns to his usual quarters. When the man leaves the hospital, which should be at his own suggestion, after an expression of idea as to his perfect fitness for duty, and not before, he should be told that he has received the treatment meted out to men of his stamp. The news will soon spread round the ship, and prevent further cases arising.

The subject of malingering has been gone into somewhat at length, but the reason is that the proper detection and treatment of all such cases is so important for all concerned that something more than mere reference to it seemed desirable. The same applies almost to the question of the extent of injury or sickness which must obtain before a man is put off duty. This, of course, cannot be laid down in any hard-and-fast ruling beyond that of personal experience. Surgeons should remember that when a man is unable to work on land a substitute may in many instances be obtained; whereas at sea this is impossible, and therefore considerable judgment must be used either in keeping a man at work or laying him off. In cases of this kind the surgeon is the sole arbiter, and few will venture to gainsay him. If he certifies a case to be fit for work, then fit it is; if not, then the man goes off duty. Whatever results from his decision, it is he who will have to shoulder the consequences. In addition to being medico, he has also to be 'man-driver' as well. Ships have been much delayed, and in some instances actually stopped, to say nothing of a seething mass of internal discontent, simply because the surgeon did not 'take charge,' and was too lenient with the men or too apprehensive of consequences.

Asiatic Crews—*Malingering*.—The workings of an Asiatic's mind are an interesting and subtle study. The majority of natives are as diffident about consulting a white man as the latter is of being treated by a native practitioner, having their own national remedies for minor ailments. When, however, the case becomes serious, or it suits their purpose to do so, they are only too eager to see the 'doctor sahib,' and there is no limit to the means they will employ to gain their ends.

One of the common complaints, if the weather is cold,

is 'fever.' Time after time, without other indication of pyrexia or question of a spurious record, the author has taken temperatures, and found a rise of 1° or 2° above normal. It is an open question whether the average normal temperature of the Lascar is not higher than that of a European. Owing to the obvious difficulties attached to mustering a gang of Lascars for a daily record, the matter is but a conjecture, although well worth remembering when obscure cases of mild pyrexia present themselves—more particularly if the man is a sailor anxious to evade his turn of 'look-out' duty on a dirty, wet night. It is a favourite method of attempting it with them. A 5-grain dose of quininæ sulph. in plain acid solution, administered by the surgeon, will prevent repetition of 'fever cases' among the more timid.

With persistent malingerers, involving in some instances much personal suffering on their part, only the experience of the surgeon himself will be of any use in differentiating wheat from chaff, and no set rules can be stated. The following instance, related by a P. and O. surgeon, admirably illustrates one of this type: A Lascar deck-hand, who had many times previously consulted the surgeon for supposed sickness, and been nonsuited, was assisted to the surgery one morning with extensive œdema of the right leg. Heart, lungs, and kidneys proved normal; beri-beri and blocked veins were excluded, leaving nothing to account for the case. At the suggestion of the serang, or head-man, the patient was made to strip entirely, disclosing a tight ligature round the femoral region, which had 'bitten deep,' and must have caused excruciating agony. The misdirected perseverance of the man was worthy of admiration. It may here be stated that Orientals strongly resent

exposure of genitalia, and the man had probably counted upon this to save him from detection.

If, after careful and repeated examinations, the surgeon is sure a man is malingering, the best course to pursue, having warned him beforehand, is to report the case to the commander. A fine of two or three days' pay will probably be inflicted, and prevent recurrence. The only way to touch a Lascar is through his pocket, abuse and raillery only serving to make him mulish and obstinate. The hospital treatment suggested for white men is useless in these cases.

Fatalism.—A most important fact in dealing with Oriental crews, especially Lascars, is their fatalism and low estimation of human life. If 'a sense of impending dissolution' takes hold of a man, no matter how slight or trivial his ailment, then the prognosis is indeed grave. The surgeon's personality and prestige with the crew will do more to save that man's life than the whole Faculty and Pharmacopœia combined.

Caste and Religious Principles.—These, while more or less unintelligible to the Westerner on first acquaintance with the East, should on no account be violated. They should be upheld at all times; otherwise trouble will most certainly ensue. Many Orientals will undergo any amount of suffering and discomfort rather than offend against a caste or religious principle.

During the observance of a certain festival, on the occasion of which nothing either solid or liquid is allowed to pass between the lips from the hour of sunrise to sunset, a man complained of severe headache and constipation. That he was suffering acutely was obvious, but on the relieving draught being offered to him, he declined to drink it, asking leave to take it away with him, wait all day, and drink it after sundown. Such spirit of religious

principle is certainly to be admired, even in a so-called heathen.

Further, it is a general rule that the higher the caste a man belongs to, the stricter will he be in observing its dictates. Some will not eat or drink out of European utensils, bringing their own to the surgery. A white man's shadow falling across their 'curry stuff' renders it unfit for consumption with certain castes.

Medicines.—In making up medicines for natives, sweet-tasting preparations should not be used, if possible; otherwise they will return again and again for another bottle. Tinct. camph. co. should be omitted from cough-mixtures for this reason, and also on account of the opium contained in it. As an efficient, and at the same time somewhat nauseous, cough-mixture the following will serve general purposes:

R Ammon chlor. . .	..	..	grs. v.
Ammon. carb. . .	..	..	grs. v.
Potass. nitrat. . .	..	..	grs. vii.ss.
Vin. ipecac. . .	..	..	℥ xv.
Spir. æth. nit. . .	..	..	℥ ss.
Aq. camph. . .	..	..	ad ℥ i.

It saves time and trouble if a concentrated solution is made, 1 ounce of which, added to 7 ounces of camphor-water, making a bottle of eight doses. The above is also suitable for steerage passengers who, having paid their fare, will take it out to the last in every possible way.

Asafoetida is useless for a *mistura diabolisti* for natives, as some castes are very partial to it, using it in their culinary arrangements. Castor-oil seems to be the best method of repressing a desire for unnecessary medical attention. It should be given pure and undisguised in the presence of the surgeon. Half a drachm of paraldehyde is another nauseating draught.

In cold weather mustard-oil or other stimulating liniments are much appreciated by Lascars, although it is marvellous to see how well they can stand cold, if dry. Liners making yachting cruises to the North Cape and Norwegian Fjords with Lascar crews are an excellent example.

Alcohol.—Whenever this drug is indicated as a therapeutic agent, it must be administered out of a medicine bottle with other drugs, as strict Mohammedans and Hindoos are staunch abstainers. It must not be insisted upon if they refuse to take it, spirits of ammonia being given instead. The lower the caste, the less difficulty will be experienced in getting them to drink it. In fact, some of them, through many voyages to Europe, become semi-civilized, and consequently not averse to alcohol—often in excess.

Opium Habit.—Where the diagnosis of a case is at all obscure, and the man not malingering, inquiry should be made with reference to the opium habit. Now and again its votaries will run short, becoming totally disorganized in consequence, and a daily allowance of the drug will set things right when other measures have failed. This applies also to Chinese and Malay crews. With them it is usually taken in the form of native extracts, which they make up into little balls and swallow. If none of this happens to be in the surgery, tinct. opii or pil. sapone will act as substitutes when given in proper quantities.

Laying off Duty.—When dealing with natives, it is advisable to lay a sick man up earlier than a European. The presence of a slightly sick man, working in a chicken-hearted manner, tends to demoralize the rest, as no one will think of doing his share. In other words, a Lascar should be put off watch sooner and for a more

trivial complaint than a white man. Lascars, when sick, always swathe the head in many folds of cloth, which fact is almost invariably a reliable sign. The right stage at which to put a man off watch can only be determined by experience, and, unfortunately, no fixed rules for guidance can be given.

Sympathy for suffering must be judiciously tempered, and, where possible, twenty-four hours should be allowed to elapse before laying a man off watch entirely. If this is not done, and a reputation for easy admission to the sick-list is once established, there will be no end to daily attendance at the surgery.

The difficulty is added to by the fact that there are no 'half-jobs' for anyone on board. A man is either fit for whole duty or nothing at all, because any member of a gang working at 'half-speed,' so to speak, only retards the whole. There are many cases quite capable of doing light work which, on account of this and medical reasons, have to be condemned to enforced idleness. The experiment of attempting to solve the question by certifying the men as being fit 'for light duty only' in suitable cases has not proved satisfactory in the author's experience. Such cases are always looked upon with suspicion by the others who are well, and usually result in further candidates for the same. The same remarks apply to some extent with European crews, and the author has given up this 'light-duty certificate' to a great extent. It resolves itself into the question of all or nothing, with no half-measures.

Invalid Diet.—The diet of invalids at sea is necessarily very restricted, being confined more or less to milk in various forms and beef-tea. Milk is usually supplied to ships in one or more of the following varieties: in frozen blocks, condensed, powdered, or concentrated.

In certain ships, where the voyage is short, sufficient fresh milk is carried in cool-rooms for use of saloon passengers.

Concentrated Milk.—Of them all, the concentrated form is the nearest approach to the real article, being simply ordinary milk dehydrated to a quarter of its original volume, and to which is added, in spite of all assertions to the contrary, some preservative agent—probably boracic acid or formalin. The main objection to this agent is not so much its quality as its varying quantity. A certain amount of boracic acid, up to 4 per cent., is requisite for proper preservation of the fluid, and does little harm in most cases. Unfortunately, this amount is not always constant, and the fact must be borne in mind when a sick person is put almost wholly on a milk diet.

A fruitful source of complaint in regard to concentrated milk arises in the mixing. The correct method is to add the water slowly, stirring the mixture all the time until the requisite dilution of 1 in 4 is obtained. This is the proper constant prescribed by the makers. The author has seen a pantry-man put an indefinite amount of the concentrated milk in a jug, hold it under the nearest water-tap, and fill it up, bringing a 'head' on the mixture, making it look more like a quart pot in a tap-room than a jug of milk. The result is complaints and unjustifiable condemnation of the milk.

Condensed Milk.—The method of using condensed milk requires no mention. It is usually supplied either sweetened or unsweetened. A tin once opened, the contents should be turned out into some porcelain-ware or china receptacle, such as a cup, and kept covered up. Often, when going on inspection in the mornings, the surgeon will see opened tins of milk in third-class cabins

From these the 'bottles' are made up as required until the tin is finished, and mothers wonder why infants develop enteritis.

Frozen Milk.—Milk frozen *en bloc* is not desirable, for the following reasons: In the freezing process there is a partial separation of the milk-fats from the other constituents. When the block is thawed for use, the components do not reassemble and mix as before, the result being a mass of oily, yellowish fat globules floating on the surface, making it unpalatable to sight and taste. Moreover, in the block form it is very liable to pick up and retain adventitious matter during the handling processes of shipping, serving it. Most ships have given up carrying it on this account. Where voyage conditions permit, fresh milk and cream are kept in a special chilling-room, and leave nothing to be desired.

Powdered Milk.—Milk in this form is prepared by various makers. It requires great care in proper mixing, and even then is never free from a peculiar taste, which sets most people against it. It is not usually carried at sea.

Sterilized Milk.—Sterilized, pasteurized, and various other forms of '-ized' milk are occasionally met with on board, brought by invalids and parents of infants for private consumption. They are all excellent in their own fashion, but quite unsuited for ordinary use, owing to bulkiness and difficulty of proper stowage.

The Italian Government has officially adopted a form of sterilized milk under the name of *latte sterilizzato*, which is excellent, and is made compulsory for emigrant ships to carry as part of their medical equipment. The Board of Trade might well follow suit. Here again, however, its bulk prevents universal adoption.

So-called 'milk from the cow' has been discussed elsewhere (*vide* p. 81).

Horlick's Malted Milk forms a welcome addition to the ordinary forms of milk. It is useful if there are many infants on board. Some cannot thrive on the concentrated or condensed varieties; the former especially seems to set up a diarrhœa, probably owing to the preservative contained in uncertain quantities.

Milk-Foods.—The various milk-foods need no further mention beyond the fact that while all have substantial claims for merit in some respect or other, no particular one can be singled out invidiously as being the best. Infants have their idiosyncrasies of diet, like adults. The 'food' on which one particular infant thrives will probably prove disastrous to another. It is simply a question of finding the particular infant's personal co-efficient in food by varied trials, if one may use such a term, and sticking to it when found. For long voyages it is a good plan to indent for an assorted stock of the different 'foods,' as it is impossible to find one universally satisfactory.

Beef-Tea.—Ship's beef-tea, as usually served in the middle of the morning, is, as a rule, quite strong enough for invalid use. If not, a special brew should be ordered. It should also be strained, as the fat globules make it look unpalatable.

Liebig's Extract and various other forms may be substituted if desired. Brand's Essence is an excellent way of stimulating invalids. It can be given plain, or served on thin toast, with pepper and salt to taste. If preferred, it may be liquefied with hot water, and a dash of Worcester sauce added. Chicken, mutton, and veal teas are all easily made, and constitute a welcome variety.

Advanced Diet.—An advanced diet is obtained by the

usual milk-puddings, *specially made*—rice, sago, tapioca, etc. Arrowroot, cocoa, chocolate, pounded fish, and poultry can be given. Eggs served in various forms—scrambled, poached, omelettes, ‘flips,’ etc.—should be made use of. Where convalescence is protracted, the main difficulty lies in providing enough change, as most of the ordinary invalid foods become irksome—more so at sea, where there is always a sort of feeling of hardship on the part of the patient—making him inclined to be a little more fractious and captious. A good diet scale for use on board will tax the surgeon’s ingenuity.

When any special or extras of diet are ordered medically, full details must be given on a slip by the surgeon, and then sent to the chief steward, who is responsible to the surgeon for its proper observance. In some companies special ‘medical-comfort books’ are issued for this purpose, and contain duplicate forms; in others plain official cards are the rule. Where no system of this kind exists, the surgeon would do well to institute one by means of a manifold copy-book, as the essence of proper management at sea is routine method, strictly observed.

It is a good plan to make out the diet orders for the day as early as possible in the morning, so as to give the cooking staff a chance to fit them in with their ordinary work, as well as to allow of stores being brought up in good time from the store-rooms. It prevents complications if the time of serving special dishes, etc., is specifically mentioned on the slip, taking care not to order anything for two or three hours later which may take the whole day to prepare. Patients, or rather their friends, are sometimes apt to be a little inconsiderate in this respect, expecting special dishes to be prepared at any moment of the day.

Infants.—As some lines of steamers are generally recognized as catering specially for families, infants of all ages and sizes are likely to be met with in them, and they afford plenty of study in infantile disorders.

Children, as a rule, stand a sea-voyage very well. The usual complaints with them are diarrhœa, prickly heat, and any infantile disorder which may chance to be prevalent on board.

In tropical latitudes very soft wool or flannel next to the skin is all they require in the way of clothing, and the less swathed up in frill and fancy-work, the better they are. For some reason unknown, the major portion of a young infant's clothing is generally situated some 2 feet below the nether extremities, and there is always a tendency on the part of parents to overclothe them.

Prickly Heat.—This condition is almost unavoidable, no matter how much care is expended in guarding against it. Contiguous skin areas should be kept well dusted with a mixture of starch, zinc oxide, and boracic acid, although any bland dusting-powder will do equally well. Any undue roughness in underclothing must, of course, be avoided if the eruption is at all marked, as such only serves to keep up the irritation and make the child uncomfortable.

Enteritis.—Under this term is meant the usual result consequent to injudicious or perhaps inappropriate feeding. The golden rule for treatment is to **eliminate all food**; administer castor-oil or grey powder as indicated. In place of food, *plain boiled water* must be given for twenty-four or even forty-eight hours. Then proceed slowly with albumen-water or barley-water. After an initial dose of oil or grey-powder, all drugs should be withheld unless specially indicated. It is also a good

plan to wash out the lower bowel as high up as possible with warm boracic acid solution (grs. iv. to ʒi.) by means of a soft Jacques catheter (No. 12 size).

One of the hardest tasks of a physician in treating this complaint is to persuade the fond mother that her infant is doing its best to demonstrate ocularly, by vomiting and diarrhœa, the unsuitability of its dietary régime, and that by giving nothing but plain water the child is obtaining the desired rest necessary for a return to health. More infant lives are lost through over or wrongful feeding than by starvation.

Following on the water treatment, the exhibition of panopepton or similar preparations hourly in 3- or more minim doses, according to age, is little short of miraculous in many instances. From this a gradual return to the ordinary form of dieting is attempted.

To obviate 'food-sickness' among infants in the third class during long voyages, a portion of which is spent in tropical latitudes, the adoption of some form of systematic feeding is strongly advocated.

On going the daily round of inspection, tins of partially consumed condensed milk will often be seen exposed to the air. Fermentation is very soon set up, and the consequences of using the milk under these conditions are serious—*i.e.*, unlimited acute gastritis.

Parents should always be instructed to turn out the contents of a tin as soon as it is opened into some china receptacle, which is kept covered up. Stewardesses must also be informed of this, and directed to call the attention of parents to it.

When a large number of infants figure on the passenger-list in the third class during a long voyage, a good method is to put up a notice to the following effect :

NOTICE.

Parents of 'bottle-fed babies' can obtain supplies of freshly-mixed milk from the Stewardess at the under-mentioned hours :

6 to 6.15 a.m.
 10 to 10.15 a.m.
 2 to 2.15 p.m.
 6 to 6.15 p.m.
 10 to 10.15 p.m.

It is to be distinctly understood that this arrangement is made solely in the interests of the infants themselves. It is in no way obligatory, but parents are strongly advised to avail themselves of it, as they can rely upon the *purity and regular quantity* of each feed.

THIS IS MOST IMPORTANT WHILE THE
SHIP IS IN THE TROPICS.

Surgeon

Such a notice explains itself, and requires no further comment. Stewardesses may be found who raise objections to this extra work (apparently) thrown upon them, but in reality it is an actual saving of labour to them in the long-run. Since adopting this system, the author has made voyages of six weeks' or more duration, with from fifty to seventy infants in the third class, without a single case of dietetic disorder among them.

The 'feeds' are freshly made at each serving-out time, and for ordinary purposes consist of sweetened condensed milk broken down with barley-water, according to the age of the recipient. The barley-water is freshly made every day by the baker as a standing order, 1 ounce of pearl barley being used to the quart of water, simmered for an hour, and finally strained.

The following table will serve as a rough guide. It has been compiled from data contained in 'Artificial Feeding and Food Disorders of Infants,' by W. B. Cheadle, M.A., M.D.

Age.	Con- densed Milk.	Barley or Plain Water.	Quantity of each Feed in Ounces.	Intervals in Hours.
Birth to 1 month ..	1	24	1 to 2	2
1 ,, 2 months ..	1	20	2 ,, 2½	2½
2 ,, 2½ ,, ..	1	16	2½ ,, 3	2½
2½ ,, 3 ,, ..	1	12	3	3
3 ,, 4 ,, ..	1	10	4	3
4 ,, 5 ,, ..	1	9	4	3
5 ,, 6 ,, ..	1	8	5 to 6	3
6 ,, 9 ,, ..	1	7	7 ,, 9	4

CHAPTER XI

OUTLINES OF TREATMENT

WHILE in no way attempting to write a treatise on therapeutics, the author submits his own methods of dealing with the cases most commonly met with at sea, leaving their adoption to the reader. The ailments are discussed at random, without any system of sequence or classification.

Headache.—At the outset it may be stated that the majority of headaches at sea are directly due to constipation and biliousness, being relieved by the usual purgatives. Not infrequently after a day on shore people will complain of severe headache, situated in the occipital and frontal regions. The cause for this is to be found in the unusual exertion of sight-seeing, glare and heat of the sun in tropical ports after a period of comparative rest on board. A mixture of phenacetin (grs. vii.), caffein citrate (grs. ii.), and calomel (gr. $\frac{1}{4}$) will generally set things right in one or two doses.

The possibility of strange and unwonted liquor of fiery nature being a contributing factor must not be forgotten.

Victims of sore or weak eyes should be told to wear smoked glasses to avoid the glare both at sea and in port. At times the glare from the sea is most trying, even to those accustomed to it, giving rise to headache

and slight conjunctivitis. For such a lotion of boracic acid (grs. vii.) and zinc sulphate (grs. ii. ad \bar{z} i.), or warm sea-water, is beneficial.

Neuralgia.—This is a rather common complaint among passengers. It may be of a general nature or localized in special regions—dental, aural, etc. The larger nerves are sometimes affected, resulting in sciatica, etc. For facial neuralgia the following mixture has proved satisfactory :

R Liq. strych.	..	..	..	℥ iii.
Tinct. gelsemii	..	..	..	℥ x.
Tinct. card. co.	..	..	..	℥ xv.
Aq. chlorof.	..	..		ad \bar{z} ss.

Sig. : A tablespoonful thrice daily after food.

This mixture must be taken for two or three days before any real permanent relief can be obtained. For acute pain one of the coal-tar derivatives may be tried. An acid solution of quin. sulph., gr. i. *pro dosa*, may be added to the above, if desired.

For dental cases due primarily to a carious molar nothing short of extraction succeeds so well as a 5-grain dose of quinine in tabloid or solution. The relief obtained from it is sometimes little short of miraculous. The cavity itself should be plugged with bicarbonate of soda and cotton-wool (Dyce-Duckworth).

In addition to the ordinary measures for the relief of earache not due to sepsis, the effect of chloroform vapour should be tried. The simplest way is to pour $\frac{1}{2}$ drachm of the liquid on a plug of wool, and put it inside a $\frac{1}{2}$ -ounce glass urethral syringe from which the plunger has been removed. The barrel is then connected up with a Higginson enema syringe, the chloroform vaporized, and gently blown into the external auditory meatus. For a few moments this proceeding is somewhat painful,

after which the anæsthetic effect takes place, and lasts for a considerable time. With aural cases the probability of hardened cerumen being the causative factor should be borne in mind and eliminated. During the hot weather the local glands become active, like others in the body, and if the product is not removed, an irritative condition may be expected.

Sciatica and neuralgia of the larger nerves must be treated on the usual lines employed elsewhere.

Biliousness and Hepatic Congestion.—For this condition calomel in $\frac{1}{8}$ -grain doses every hour until $1\frac{1}{2}$ grains have been taken, followed by a mild saline, is very effective. Taken this way, the patient need not necessarily lie down, although it is better for him to remain quiet. At the same time, he should be starved for twenty-four hours, subsisting on dry toast, weak tea with a squeeze of lemon in it, and without milk or sugar. Soda-water may be drunk *ad lib.* This method is far superior to the old-fashioned and drastic one of 'blue pill' at night and 'black draught' the next morning.

For patients of hepatic temperament prevention is better than cure, and can be obtained by the occasional use of a 'liver pill' containing podophyllin, euonym, and aloin. The alterative action of salicylate of soda should not be lost sight of in cases intolerant of mercury.

Constipation.—Owing to the combined effect of rich living, lack of suitable exercise, and a bracing state of the atmosphere at most times, constipation is much more common and obstinate at sea than elsewhere. The majority of passengers will bring their own stock of aperients on board, generally in the form of various patent saline preparations, etc., most of which are quite ineffective in the usual doses. They will wait three, five, or even ten days for these to operate before con-

sulting the surgeon, and on doing so will probably only complain of headache and malaise, making no mention of constipation unless directly questioned.

In these instances the best remedy is *ol. ricini* ℥i. by the mouth, aided by a glycerine or olive-oil enema *per rectum*. Glycerine suppositories are very useful in these cases, although care should be taken to see that patients understand the use of them. They have been known to eat them, and wonder why nothing happened.

Ship's castor-oil not being even of the so-called ' cold-drawn tasteless ' variety, a good method of giving it is as follows : A sherry glass is first of all cleansed with rectified spirits, and then filled to the brim with water. The water is then emptied, except for about a table-spoonful, into which is poured a teaspoonful of brandy. The glass is held on a slant, and the dose of oil gently poured on to the surface of the water, taking care that none of it reaches the sides of the glass, and that there is a cushion of water all round the oil. A final layer of brandy is poured on the top of the oil, and the mixture swallowed like an oyster. If the dose is properly prepared, as directed above, the oil is not tasted. After use, the glass should be immediately cleansed with spirit, and then dried in readiness for the next dose.

As a continuous aperient, the ' *tinctura laxativa* ' mentioned in Martindale and Westcott's ' *Extra Pharmacopœia* ' is of great value. The formula is appended below:

R	Ext. cascaræ sagrad. liq.	} āā partes ii.
	Spir. ammon. aromat.	
	Spir. chloroformi	
	Tinct. nucis vom.	} āā pars
	Tinct. belladonnæ	

The author's plan is to give an initial dose of ℥i., followed by ℥ xv. to ℥ xxx. thrice daily after food, as indi-

cated. The requisite dose can be regulated to a fine degree of activity, and its effect does not seem to diminish by use. The above, made up with an equal volume of decoction of aloes, is even better still, although strongly objected to by patients, owing to its nauseating taste.

For members of the crew, the British Pharmacopœia *mist. sennæ co.* should be augmented by *mag. sulph.* and *sod. sulph. āā ʒss.* to each ounce of the mixture. Castor-oil is also excellent, although not well borne in the hot weather.

Castor-oil capsules, if carried on a hot-weather voyage, should be kept in a refrigerator, likewise suppositories, and taken out when wanted. The superiority of the former to oil, administered as described, has not demonstrated itself to the author, and he has given up using them.

Diarrhœa.—This condition is always a source of anxiety on board, being often, so to speak, a harbinger of woe, and should therefore never be neglected. In addition to personal idiosyncrasy, the cause is to be looked for in one of the following :

1. Water-supply of the ship.
2. Food-supply of the ship.
3. Excessive use of iced drinks on board.
4. Excessive use of 'health salts.'
5. Indiscretions of diet, both on board and ashore in foreign ports.
6. Tropical diarrhœa.
7. Any specific condition in which diarrhœa may be a sign : sprue (*vide infra*), cholera, enteric fever, renal, intestinal, etc.

Nowadays the water-supply of the ship is rarely the cause, but its possibility should not be lost sight of. The distribution of the complaint will be very sugges-

tive. If local, it does not count for much ; but if general throughout the ship, then the water must be suspected.

Rough tests for organic impurities can be made with the solution of potassium permanganate ; also acid solution of silver nitrate and potassium iodide, starch and sulphuric acid. A Burroughs Wellcome portable water-analysis case might be carried on all passenger-ships to advantage.

If distilled sea-water is in use for drinking purposes, such may be the cause in some cases.

With regard to food-supply, now and again it may happen that some article of food has been served out accidentally which was not as fresh or sound as it might have been. Here again the distribution will be the best guide.

Shell-fish of all descriptions which has been kept in cool chambers for some time, although perfectly sound and edible, will sometimes set up an enteritis in some persons.

Excessive use of iced drinks in hot weather may cause an acute intestinal catarrh, with much griping and watery motions, occasionally streaked with blood and mucus. On one occasion, out of 800 souls on board while in the Red Sea, five days from the last port of call, sixty cases of diarrhoea and colic reported themselves within thirty-six hours. After careful inquiry as to cause, it was found that all the cases were confined to those having free access to ice and iced drinks—viz., saloon passengers and stewards. No cases occurred among the third-class passengers or other departments of the ship. A large percentage of the sufferers were elderly, and all had partaken freely of iced drinks. The only conclusion possible was that it had been set up by too much ice and iced drinks. The ice itself was perfectly pure, being tested for this.

'Health salts,' taken frequently in large and ineffective doses, are liable to set up an irritation of the intestinal mucosa, resulting in painful watery stools. This is probably due to their forming small concretions, which act as foreign bodies. The treatment is obvious.

Indiscretions of diet ashore in foreign ports are a frequent cause of enteritis. Diarrhœa arising after a visit to Colombo is always attributed to 'curried prawns,' and clinical observation tends to confirm this. Residents of the town very rarely touch this delicacy.

The change of diet from ship to shore, and *vice versa*, is also a possible cause in persons whose alimentary system is susceptible to the slightest variation of cuisine.

While a vessel is in tropical latitudes, a variety of diarrhœa may be met with which is somewhat choleraic in nature—milky, fluid stools, with much griping and tenesmus, accompanied by sweating and collapse. This is ordinarily termed 'tropical diarrhœa,' and is apyrexial and catarrhal in character.

Treatment.—The golden rule of purging a case of diarrhœa of less than twenty-four hours' standing, and astringing if of longer duration, holds equally well at sea as elsewhere. To particularize: in cases due to indiscretions of diet, etc., 1 ounce of castor-oil, with or without 10 or 15 minims of chlorodyne, according as to whether there is much pain or not, is the best remedy, and rarely fails.

In the tropical type a more astringent course of treatment is indicated, with great care in dieting. Spirits of camphor, 5 to 20 minims in an ounce of brandy every three hours, an ounce of a mixture containing equal parts of brandy and port wine every three or four hours, may be tried. Pulv. cretæ aromat., with or without opium, four times a day, or bism. subgallate, often afford relief.

The intense thirst always present in these cases can be allayed by small sips of cooled barley-water or imperial drink at intervals. Washing the lower bowel out slowly with the pelvis well raised is very soothing to the mucous membrane. A saturated solution of boracic acid or soda bicarbonate (grs. xx. ad ʒi.) may be used, a pint at a time, twice or thrice daily.

If a preliminary dose of castor oil is ineffectual, the following can be given for thirty-six hours or so, pending diagnosis, without much harm. It should not be continued for a longer time, owing to the possibility of the opium masking symptoms :

R Tinct. ferri perchlor.	..	..	℥ v.
Tinct. opii	..	..	℥ vii.ss.
Acid. sulph. aromat.	..	..	℥ xv.
Tinct. cardamomi co.	..	..	℥ xv.
Aq. chloroformi	..	ad	ʒss.

Sig. : A tablespoonful every four hours.

Rest in bed is necessary, and, of course, in protracted cases the stools should be examined as a routine measure.

The diet should be limited to bland farinaceous foods—arrowroot, custard, rice, dry toast moistened with milk. The amount of fluid must also be restricted, and nothing of an irritating nature given. Beef-tea, if given, should be well strained, and is best made into a jelly with isinglass. Milk with the white of an egg beaten up in it is mild, yet nourishing. Enough nourishment for a day can be obtained from the following scale :

Milk, $\frac{1}{2}$ pint.

Beef-tea or Lemco, etc., $\frac{1}{2}$ pint.

Brandy (if indicated), 4 ounces or more.

Custard, arrowroot, or jelly, q.s.

Dry unsweetened biscuits or toast.

Barley or albumen water, $\frac{1}{2}$ pint.

The various food preparations may be used if desired and indicated. They should be given slightly warm ; in fact, all nourishment should be taken in this fashion.

A remedial measure of great value in diarrhœa of probable protozoic origin consists of a mixture of equal parts of sulphate of magnesium and sulphate of quinine. When these two drugs are mixed, a paste results which is not as unpalatable as might be expected. A drachm every four hours for three or four doses will generally effect a cure. This remedy is said to be very popular with Boer farmers, situated far distant from medical attendance. The writer's experience with the same has been very satisfactory, but a mixture of equal strength solutions, made with a view to adding flavouring agents, has proved curiously inert. This has been the case both with simple solutions and flavoured ones, leaving the inference that the beneficial result is due to some compound formed on mixing the salts in their natural state. The paste should be freshly made for each dose.

Dysentery.—With a limited experience of true amœbic dysentery—all diarrhœa in the tropics is loosely termed 'dysentery'—the author is inclined to prefer ipecacuanha to other recommended drugs, such as calomel, Epsom salts, castor oil, etc. Nausea and vomiting can be avoided by hypodermic injection of morphia (gr. $\frac{1}{4}$) fifteen or twenty minutes before administering the powder in 20-grain doses four-hourly. Most cases will show signs of improvement about thirty-six hours later.

Another method of giving it is to combine 15 grains of pulv. ipecacuanhæ with 10 grains of Dover's powder three times a day. For this purpose wafer-cachets are very useful.

While under treatment the patient should be kept in the recumbent position, being told to be extremely quiet

for at least half an hour after taking the drug. He should also be kept comfortably warm.

The most suitable diet for these cases is warm clear bouillon and egg. Milk is never well tolerated, and tends to pass through in curds. Alcohol must be kept in reserve in case of collapse, the heart being carefully watched for symptoms of the latter. Convalescence is either fairly rapid—within a week or two—or the case becomes chronic. In the event of the latter taking place, the lower bowel should be slowly irrigated with a solution of turpentine (ʒi. ad Oi.), silver nitrate (grs. x. ad Oi.). The excess of silver must be subsequently precipitated by salt solution. Another method is to employ saturated boracic acid. This should be done once or twice daily. The diet, too, must be of the lightest and blandest character; the patient should be lightly but warmly clad, and not allowed to exert himself in any way.

Sprue.—On ships trading to the East will not infrequently be found cases of sprue, or psilosis, invalided home to England. Without in any way attempting to describe the disease, etc., beyond stating that sore mouth and tongue, as described in textbooks, are not an essential sign or accompaniment of the disease, a few brief suggestions on the management of these at sea are given. Indeed, there is a type of sprue in which buccal symptoms never occur at all, or only as a late development.

In the first instance, according to present knowledge, milk is not the correct form of treatment to pursue. It may check the diarrhœa, but will not cure the cause; in fact, one might say it was contra-indicated except in very limited quantities (Cantlie). Undercooked meat is the only satisfactory form of treatment so far. Drugs

are practically useless except for relief of urgent symptoms. It is not much removed from the truth to say that at present the whole therapeutic régime in this disease is one of diet.

Meat, very lightly cooked, should be given three or four times a day, with thin toast, green vegetables, and water-boiled rice puddings. Stewed fruits, especially apples, are permitted ; strawberries seem to have some specific action upon the disease. Soup made from fresh minced liver, if obtainable on board, is strongly indicated.

All made dishes, curries, entrées, etc., are forbidden, also tea and coffee. Cocoa made with water is permissible. For the intense thirst so commonly present, barley-water, orange- or lemon-squash may be given. Whisky-and-soda at meals is allowed if desired.

While staying the intestinal flux, constipation is to be studiously avoided ; at least one, if not two, evacuations should be obtained daily. When this is not the case, copious warm-water enemata are to be given. The buttocks should be well raised, so as to irrigate as high up as possible. In this way the thirst is also often relieved, as a certain amount of absorption takes place.

As previously mentioned, drugs must only be used symptomatically. If the stools are at all 'livery'—clay-coloured—two or three doses of calomel (gr. $\frac{1}{3}$) will generally stimulate the liver sufficiently. Salol and beta-naphthol can be given as intestinal antiseptics to check putrefaction and relieve flatulence. In mild cases of the latter sodii bicarb. (gr. xx.) after food will often suffice. Two to four drachms of castor-oil should be administered when much pain occurs with the passage of mucus. The latter is a sign of active disease,

and no improvement is to be hoped for until all the affected membrane is extruded.

Great care must be taken to prevent patients catching a chill on changes of weather ; in fact, an outburst of symptoms is generally to be expected at these times. Sprue patients are often hurried on board for passage to England quite regardless of the season there on arrival. This should, if possible, be summer-time ; if not, they must be warned and advised to break their journey in the South of France or some other warm district.

Enteric Fever.—Unless some common source of infection is present on board, enteric fever only occurs in sporadic cases at sea, infection having taken place prior to embarking. The great difficulty in these cases is the want of proper nursing, etc. ; otherwise there is little to be said as to treatment. They should, of course, be isolated and landed at the earliest possible opportunity.

Even at the risk of incurring a just charge of unoriginality, the author cannot help stating that enteric fever of hospital wards and that of general practice differs widely. More especially is this so in ship-practice, where cases may be picked up from all parts of the world. The result is a greater incidence of what, for want of a better term, may be called ‘ atypical typhoid.’

After a somewhat extensive though scattered experience of enteric fever in various parts of the world, the writer is inclined to attribute this variation to the existence of endemic analogous forms of the *Bacillus typhosus*, as yet not entirely separated, and bacteriologically worked out in comparison with Eberth’s bacillus. For example, the enteric fever met with in Queensland is clinically different from that of Western Australia ; likewise that of South Africa from Eastern countries.

Most of them, however, will give the Widal-Grünbaum

reaction. Its macroscopic equivalent is admirably adapted for use on board ship and in outlying country districts far removed from bacteriological laboratories. The 'Agglutinometer' apparatus, put up by Parke Davis and Co., is a very convenient and portable form of this test. The restrictions of the Widal-Grünbaum reaction apply equally to the agglutinometer—*i.e.*, non-agglutination is not negative.

As to treatment, very little can be laid down definitely, in view of existing differences of opinion on this subject. Readers must follow out the lines indicated by their own experience and teaching. With reference to the debated question of feeding these cases on solid food, the writer's experience is limited to ten cases, with no mortality. The point to bear in mind when carrying out this line is to feed *ab initio*, and carry on throughout the disease. The danger lies in exhibiting solid food after a period of rest, when a certain amount of 'atrophy of disuse' has set in. It is only natural then to expect the intestine to be unable to perform its accustomed work. The food itself should be well minced before administration, and also much under the average in quantity, about 8 ounces spread over the twenty-four hours being quite ample. Pounded fish, beef, mutton, and chicken may be given alternately to avoid monotony.

Fractures.—In the author's experience, there is a tendency of fractures occurring at sea to be atypical as far as textbook descriptions go. This is due, no doubt, to a difference of etiology engendered by conditions peculiar to a ship. They must be treated, therefore, on general principles, having due regard to local indications. Where feasible, a removable plaster-of-Paris splint is best for ship use (*vide* Appendix V.).

In cases of fracture of a lower extremity an excellent

'cradle' can be made by knocking the bottom out of a wooden box of suitable size. The box is then put inside the bunk, and the injured limb encased in it, being slung from the top of it by broad webbing bandages, or in a towel folded double and fastened at the top. Such an arrangement allows the patient considerable freedom of movement, and is very easily fixed.

When required and the site of the lesion permits, extension is easily applied to a lower limb as follows. Either before or after the splint is put on the patient's boot is drawn on over a sock or stocking cut down, and the laces fastened. A metal eye-bolt is screwed into the front part of the sole, and also into the heel, the two being connected by means of a stout cord or flexible wire, which acts as point of attachment and traveller for the extension weight, applied in the usual manner over a pulley at the bottom of the bunk. Pulleys can be improvised out of cotton-reels, although the chief officer can in most cases be relied upon to furnish a small 'block' suitable for this purpose. The block can be fixed to the upper bunk or any other convenient situation. Weights will be obtained from the chief engineer, and consist of fire-bars cut down to proper weight and dimensions.

Everything considered, this is a more rational method of applying extension than by means of the orthodox stirrup made of wood and adhesive plaster, with its knack of sticking to everything but the right thing. It does away with the irritation so often caused even by the finest of strapping, and is much more comfortable for the patient, as the 'pull' is evenly distributed over the foot. Moreover, the boot is easily removed, and the foot can then be washed with spirit lotion without any disturbance of parts.

If the vessel is in, or about to enter, the tropics, careful inquiry should be made as to the action of the patient's sudorific glands before fixing a joint or fracture with adhesive plaster. If, as is done in the case of fractured clavicle, this method is used, and there is much action of the sweat-glands subsequently, an acute eczematous condition may very likely be set up in the underlying skin. Should there be any chance of this in case of a clavicle, the fracture is best put up by the 'three-handkerchief method' or by means of a crutch, which can easily be manufactured on board.

For fingers, the curved-glass type of tongue-depressor in common use makes an excellent splint, as there is plenty of room to fix it firmly in the palm of the hand, and the curve of the glass is adapted to the extended position of the finger and hollow of the hand. If desired, the splint can be moulded on to the finger by successive layers of adhesive plaster strapping, applied one above the other, with a space for ventilation. Before applying the first layer of strips, the finger should be covered with a single turn of bandage to prevent the strapping sticking to the skin. A piece of wide tape fixed to the distal end of the spatula with plaster completes the operation. When the plaster has moulded, the splint can then be slipped off the finger, bringing with it the turn of bandage. This is gently separated from the plaster, so as not to disturb the shape. Before replacing the splint, the inner side of the plaster must be well dusted with chalk or similar powder to neutralize its sticking propensities. In this fashion a comfortable, reliable, and removable splint can be made without much trouble, and the finger can be massaged daily if indicated.

Cutaneous Affections—Burns.—For superficial burns

the old-established carron-oil is the best dressing, and, if applied early enough, gives great relief. A few drops of eucalyptus-oil may be added to the mixture as an antiseptic and preservative. Picric acid is also a dressing which should be kept handy. Unless the blisters are large, they should not be tapped, being allowed to absorb. If they are ruptured, ung. zinci or boracis may be applied on a piece of lint. Zinc oxide lightly dusted over and covered with a bandage is the simplest form of dressing.

Traumatism of the Skin.—Mild cases of traumatism of fingers—cuts, scratches, etc.—will be met with in men such as scullions, etc., whose occupation is largely confined to the washing and cleansing of various articles of daily use on board. The case may be so mild as not to warrant ‘laying off duty,’ but at the same time, unless the wound is kept dry, healing will not take place, and with men of this type there is always some risk of secondary infection occurring.

An excellent method of sealing such a wound up is as follows : A finger bandage is unrolled for about 12 inches or more, and laid flat on a slab. The unrolled portion is thickly smeared with vaseline or other soft unguent by means of a flexible spatula. The wound itself is covered with whatever dressing may be desired, and over this a piece of Christy tissue is placed. The vaselined bandage is next applied above everything else. By this method a finger can be bound up, put in water, and remain perfectly dry.

Pediculi.—Owing to circumstances, the only radical cure for pediculi pubis lies in shaving the parts, as mercurials do not destroy the nits or embryos, and re-infection is almost certain to take place from clothes previously worn, unless it is possible to bake them.

This, under favourable conditions, and with the consent of the chief engineer, may be done by hanging infected clothing over the 'boiler tops' for a day. All ships licensed by the Italian Government for the carriage of emigrants are obliged to have a steam-sterilizer fitted, in which any material requiring thorough baking can be placed and submitted to dry or wet steam heat. The same should also be enforced by the Board of Trade for British ships.

Recently the use of essential oils was advocated as being quite as effective and much safer than free use of mercurials. Personal experiment has not justified this statement. Oil of sassafras, however, is most useful, serving the double purpose of killing the living parasites and loosening the nits from the hairs to which they are attached. It should be rubbed over the scalp at night, and the head swathed in a triangular bandage. The use of a fine-toothed comb next morning will effectually dislodge everything. The great drawback to this drug is its peculiar and pungent odour, which permeates everywhere, being very tenacious.

Flea-Bites.—A good way to allay the itching consequent to a flea-bite is to thoroughly scrub the part with spts. vin. rect., and finally coat it with collodion flexile. An antiseptic may be added to the spirit if desired: 1 in 4,000 perchloride solution is the best.

Guinea Worm.—This condition is to be met with in West African and West Indian trade ships. The best treatment is to inject the whole cavity with 15 minims of a 1 in 1,000 solution of perchloride of mercury. A quarter of a grain of cocain hydrochloride should be added. In a few days the parasite can be extracted from the cyst with fine forceps. The orthodox native

method of winding it off daily on a match or split cane is slow and uncertain.

Prickly Heat.—This is an urticarial or erythematous rash, not unlike that of measles, with a varied distribution, and accompanied by intense irritation. It is more commonly situated on the body and the neck than on the extremities, and very rarely on the face. Eruption takes place shortly after entering the hot weather, subsiding again as soon as a cooler climate is reached. Occasionally it may be followed by desquamation. In bad cases there may be slight pyrexia and some constitutional disturbance. The irritation is intense, worse at night, and infants suffer acutely. Its etiology and pathology are obscure, the treatment unsatisfactory. In all probability, it is a modified miliaria, being most common and accentuated in parts subject to pressure, such as round the hips, where a belt may press, or over the shoulders, in the region of braces, which cause increased activity of the sweat-glands.

Manson's dusting-powder—a mixture of starch, zinc oxide, and boracic acid—may be tried. Carbolized glycerine (1 in 20) or a saturated solution of bicarbonate of soda may give some relief after application. Some authorities advise careful dieting, avoidance of sea-water baths, etc., although the result in the majority of cases is not worth the trouble it entails, except, perhaps, in very severe cases, where no doubt sea-water acts as an irritant. That local conditions at sea are not the only cause of this complaint is proved by the fact that it occurs frequently in up-country districts in tropical latitudes.

Impetigo.—This condition is not uncommonly met with among the children in a crowded steerage, and unless promptly dealt with will soon spread. The most

satisfactory method of treatment is to thoroughly remove all scales and crusts with cotton-wool, soft-soap, and warm water, so that a clean surface is obtained. Ung. hydrarg. ammon. is then well rubbed in ; two or three applications of this night and morning will suffice. The most important factor is the absolute removal of crusts. Unless this is done, no benefit can be expected. All children suffering from this condition should be kept apart from the rest ; with adults, isolation is not quite so necessary, as they do not come into such intimate contact with one another.

Dhobie Itch.—The truth of the statement that this condition is acquired from clothes washed by dirty 'dhobies'—washermen—is not at all apparent. In appearance it resembles a ringworm, and in all probability belongs to that class of fungi. It consists of red, raised and glazed patches, with a regular festoon margin, slightly scaly at the extreme edge. The skin has a peculiar soft, velvety feeling to the touch, not unlike that obtained on a skin surface dusted with salicylate of soda. Such sensation is almost pathognomonic, and is sharply limited by the line of garland demarcation.

The disease is generally situated high up on the inner side of the thighs, occasionally on the scrotum and axillæ (Manson). Irritation is intense, being worse at night-time.

The orthodox treatment by chrysophanic acid or crude Goa powder is satisfactory, but has the drawback of staining deeply everything with which it comes into contact, and, moreover, it is not usually found in ships' surgeries. Liq. plumbi subacetatis fort., with equal parts of tinct. opii, on lint is effective. At first the lesion smarts considerably, but this finally passes off.

Painting with liq. iodi fort. sometimes gives good results. It should be applied every third day, and three or four applications will usually suffice.

A 'Dutch wife,' which is a cane cylinder covered with cloth and placed between the knees, or a hard pillow will serve to separate the parts during the night. In fact, while in the tropics the use of such an appliance is very pleasant, quite regardless of any necessity for it. All contiguous skin surfaces should be kept scrupulously clean, and lightly dusted with zinc oxide and rice powder at all times in hot climates.

Boils.—This condition is by no means uncommon at sea during long voyages. While engaged in the trade to the Antipodean Colonies the writer has remarked that there is a greater incidence of boils among third-class passengers on the homeward passage than outwards. Australians and New Zealanders are great eaters of meat, mostly of the fresh-killed variety. Although liberally supplied with this article of diet on board, it is either frozen or chilled. This would seem to lend weight to the theory that scorbutic conditions are due to lack of fresh-killed meat, as well as by excess of the tinned variety, and also that frozen meat is not a substitute for either.

Sufficient regard for the requirements of diet while the vessel is in tropical latitudes is not always paid by those responsible for the victualling of passengers at sea. The author has seen hot salt pork and plum-pudding served to third-class passengers while the ship was within two degrees of the Equator ! Such errors in diet may also be—in fact, they undoubtedly are—productive of this condition.

A very useful method of prophylaxis is free purgation with Epsom salts mixed with lime-juice (ʒi. ad ʒi.),

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diluted with the requisite amount of water. Meat should be restricted for the time being, and if there is much debility, tonics such as cinchona will be of service. Alcohol (ʒiv. ad ʒviii. per diem) may be indicated.

If seen early—that is, before suppuration has actually taken place—boils may be averted by thoroughly cleansing the surrounding skin with perchloride solution (1 in 2,000) or carbolic acid (1 in 40), and then painting with iodine. Another method is to drill a hole in the centre with a clean sharp wooden match dipped in carbolic (1 in 10).

Provided it is done early enough, the best abortive measure is inunction of the affected area with ung. hydrarg. Should the application not have the desired effect, it is, however, very satisfactory in preventing extension. The same treatment may be used in cases of impending cellulitis, from whatever cause arising.

Another abortive remedy is the continuous application of compresses of rectified spirits under oil-silk for twenty-four or thirty-six hours. They should be kept moist, being frequently renewed. The surrounding area must be well cleansed with ether and carbolic acid (1 in 40), and then smeared with an antiseptic unguent. Boils should never be poulticed or incised at this stage.

When suppuration has occurred—and that is the time when cases of this kind usually come to the surgery—the following drastic but thoroughly effective measure should be adopted: The central greenish slough, or 'core,' must be removed with fine forceps, and the cavity well swabbed with the following solution, applied on a piece of wool with a fine probe or match. The solution consists of carbolic acid (60 per cent.), camphor (30 per cent.), and rectified spirit (10 per cent). After

the first few seconds, the anæsthetic effect of the carbolic acid comes into action. The next day the cavity will be found more or less surgically clean after removal of the resulting slough, and will then granulate up without further trouble.

If the condition is extensive and of the carbuncle type, it should be freely laid open by incisions radiating outwards, scarified and plugged in the usual manner, care being taken to see no pus is locked up to delay healing. General tonic treatment should also be administered.

Fireman's Cramp.—This ailment, although not often very severe, is somewhat alarming when seen for the first time. It is a state of tonic contraction affecting the muscles of the abdomen and extremities. As its name indicates, it is confined chiefly to firemen who, while below or when coming off watch in a great state of heat, have drunk a quantity of iced water, or have stood under a windsail or ventilator to get cool. The patient is generally found writhing and groaning on the deck, with muscles flexed, hard, and rigid. At first sight the appearance is not unlike that of a case of strychnine poisoning.

Treatment consists of sharp friction of the affected parts with some stimulating liniment, such as lin. camph. ammon., and the internal administration of tinct. chloroformi et morphinæ co. (℥x.), when indicated by pain, and repeated in ten minutes if necessary. A bath at 108° F. affords relief, if it can be promptly given; this, as a rule, however, is not always practicable. If the patient is unconscious, cold affusion should not be applied, or only very sparingly, owing to the danger of additional shock to an already probably overheated system (*vide infra*).

The same condition is sometimes found among pas-

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sengers in the tropics who have taken a ' long iced drink ' while heated through sports, etc.

Shipping druggists supply what they call ' fireman's cramp mixture,' apparently composed of ether, spts. ammon. arom., and chloroform. An effective cramp-mixture is made as follows, and should be kept in the engine-room in a vessel of iced water by the engineer of the watch, so as to avoid sending for the surgeon every time a man has cramp

R	Spir. æther.	..	..	..	} āā ʒss.
	Spir. chloroform.	..	..	..
	Spir. ammon. arom.	..	..	..
	Tinct. capsici	..	..	..	℥x.
	Aquam	..	..	..	ad ʒi.

Sig. : Two tablespoonfuls for a dose ; to be repeated in fifteen minutes if required.

A substitute for tinct. capsici, which is not officially carried, can be made by macerating 2 drachms of cayenne pepper in 4 ounces of rectified spirit diluted to 70 per cent. for a week, filtering and expressing the residual mass. Dose : 5 to 20 minims.

Potable spirits—brandy, whisky, etc.—should not be administered ; otherwise a large incidence of ' cramp cases ' may confidently be expected. When a case of this nature is brought out on deck, passengers will often administer brandy, etc., *ad lib.* long before the surgeon can arrive on the scene. To check an epidemic following on such an instance, the writer issued instructions that he was to be sent for before a man was brought up from below. Free use of sal volatile and ether had a salutary effect in more ways than one.

Many cases of cramp can be directly attributed to the practice of keeping iced water in the engine-room and stokehold for men to drink when on watch when the

ship is in the tropics. It is in these latitudes that the incidence of cramp cases is greatest, very few being met with in cold weather. It is practically impossible to stop men drinking iced water to excess when in a state of heat down below, and the best method of checking it is to supply instead a concoction of oatmeal-water and lime-juice, kept at a temperature of about 60° F. in a felt-covered receptacle. Such a mixture, while being nourishing and refreshing, is sufficiently insipid to prevent men drinking it in any large quantity. This is all that is required, as it would be inhuman to deny them liquid at all.

Another hot-weather custom, which has obtained almost from the early days of steam, is that of allowing each man a tot of rum per watch, to be drunk while down below. The absolute wisdom or necessity of such a practice is not apparent. If carried out, the rum should only be served after a man has finished his spell, and not during the performance of it. The stimulating effect soon passes off, leaving him listless and slack for the rest of the time. Many will resort to all kinds of tricks in the hope of getting a double allowance.

Lascars and other Orientals employed in the engine-room and stokehold very rarely actually drink water while on watch, being content to simply rinse their mouths out with it. Consequently, cramp is practically unknown amongst them. Rum, also, is never served out to them.

Oatmeal-water is made by soaking 2 ounces of the meal, enclosed in a muslin bag, in a pint of water. The ordinary 'fortified' ship's lime-juice is added in the proportion of 3 or 4 ounces to the pint. The meal can be used two or three times over before being thrown away. The mixture itself should be kept in an inner

receptacle having an outer felt-covered ice-jacket, to prevent undue heating in the engine-room.

Thermotaxic Disorders.—These are the result of more or less prolonged exposure to the sun or a high external temperature, such as that of an engine-room or stokehold, etc. Two separate clinical conditions result therefrom—heat apoplexy and heat exhaustion. As the treatment of each is diametrically opposed to the other, differential diagnosis is very important.

Heat Apoplexy, or Siriasis.—This is a disturbance of the thermotaxic centre, leading to a state of high pyrexia—‘thermic fever.’ It is probably due to some chemical change in the choline compounds, brought about by excessive heat, and resulting in a form of toxæmia. The patient *succumbs gradually* at his work, becoming finally unconscious. The pulse is hard, rapid, and bounding; the face congested and cyanotic; the breathing is stertorous and laboured. The pupils are contracted, reacting very sluggishly to light. The rectal temperature will vary from 106° F. upwards. Irregular convulsions are occasionally met with.

Treatment consists in immediate removal to a cool place and loosening of all clothing, which should be cut away to save time. The next step is to swathe the body completely in crushed ice. The head should be shaved, and an ice-cap applied. Venesection to 10 ounces or more, coupled with intravenous injection of the same volume of normal saline, should then be performed. These latter measures are often resorted to too late. As the state is undoubtedly one of toxæmia, it requires prompt and energetic measures to combat it.

While the above is being done, bystanders should be directed to massage the body sharply, so as to bring the overheated blood to the surface. The temperature

(rectal) should be carefully watched, and when it has commenced falling, which it does slowly, it should not be allowed to drop below 101° F. for fear of syncope. At this level ice should be stopped, and the patient lightly covered with a dry sheet. The temperature will probably bound up again shortly after cessation of refrigerating measures, and must be reduced as before.

Antipyretics are practically useless, and must *not* be administered, owing to their depressant action on the cardiac nerve-centres.

When the fever has subsided and remained in abeyance, the patient should be kept in bed for at least a week, as meningitis is not an uncommon complication. The diet should be light but nourishing, without any stimulating action, and the bowels must be kept freely open.

If meningitis occurs, there is very little fever as a rule, the most marked symptoms being a severe headache, indefinitely localized, and much accentuated by the slightest movement. There is also some degree of intra-ocular pain. The best treatment is absolute rest in bed in a darkened room, venesection if indicated, and ice to the head and spine. The diet must be light and fluid, the bowels being well purged.

After a patient has recovered he should be warned as to his mode of living, avoiding exposure to heat and the use of alcohol. Alcohol in these cases acts somewhat similarly to the way it does in old cases of concussion, and is absolutely contra-indicated at all times.

Heat Exhaustion.—This is more a form of syncope and cerebral anæmia. The patient *succumbs suddenly*, is pale, clammy, and collapsed. The pulse is thin, thready, and rapid; breathing shallow and quiet, with a tendency to sighing. The pupils, as a rule, are dilated,

but may be normal or even slightly contracted, reacting to light. Temperature is generally subnormal or slightly raised, and consciousness may be lost.

The treatment here is exactly converse to that of apoplexy—viz., raising the temperature by external methods, such as wrapping the patient up in blankets wrung out of hot water. Hot bottles should be applied to the extremities, etc., and the head kept low. If possible, the best method is to immerse the patient in a hot bath, 106° to 110° F.

In applying heat, care should be taken to avoid the patient being burned, as, if unconscious, he is not able to give warning.

Stimulants—brandy, ammonia, etc.—should be given by the mouth as soon as possible, or injected hypodermically.

‘Just here, however, must be uttered a word of warning—namely, that the mere fact that the skin is cold does not prove the case to be one of heat exhaustion, since a rectal thermometer may show the central or real temperature of the body to be that of hyperpyrexia’ (‘Textbook of Practical Therapeutics,’ by Hobart Hare, M.D.).

Cold should be used very cautiously as a stimulant, for fear of adding to the syncope.

As a rule, there are no complications. Meningitis is not a common sequela, but convalescence may be slow and prolonged. Good food and tonics are indicated.

The decision as to when and whether cases of thermotaxic disorder are fit for duty is by no means easily arrived at, especially so after siriasis. The general condition of the patient should be determined as accurately as possible, and no undue risk taken. Return to duty should be graduated both as to time and place.

If any obstacle to this gradual mode of return is raised by heads of departments, the man should be kept off duty entirely for at least two or three weeks.

‘Cold.’—At the outset it may be stated that there is no common complaint so resistant to treatment at sea as an ordinary household ‘cold,’ more especially if it has been acquired on board. Moreover, at sea people will worry about a cold, wanting treatment, etc., which at home they would otherwise possibly neglect, allowing it to run a natural course.

A ship is always draughty, both above and below decks ; an equable temperature cannot be maintained unless each state-room is fitted with an independent source of heat, which can be regulated at will without reference to others in the vicinity. In the tropics, too, the usual homely remedy of diaphoresis is impossible, owing to the continuous action of the sudorific glands.

With much nasal catarrh, douches of boracic acid, sodii bicarb., glyco-thymoline, or other form of astringent preparation, may be used. Even plain sea-water has a beneficial effect not to be despised. Inhalations of eucalyptus-oil, tincture of benzoin, etc., can also be used. Preferably, the ‘cold’ should be allowed to exhaust itself, unless it shows tendency to extend to the bronchial region. If people are desirous of medicinal treatment, some of the ordinary stock mixtures may serve to satisfy them, without, however, curing the cold.

While on the subject of ‘cold,’ mention must be made of the electric fans placed in passengers’ cabins. To those unaccustomed to them their use is often a source of danger, the ill-effects varying from neuralgia, sciatica, facial paralysis, to acute enteritis, which may terminate fatally.

Fans are fitted for the purpose of circulating the air,

and not to cause a cooling draught to impinge upon the sleeper in his berth, however pleasant it may be. The results of a continuous current of cool air playing upon a localized area of skin during the total relaxation accompanying the function of sleep must be perfectly obvious on the slightest consideration. The ship-surgeon cannot impress this fact too much on passengers, although in most cases he will be laughed at as a scare-monger, until some marked instance of facial paralysis or other disorder occurs to vindicate him, and, incidentally, to discontinue the use of fans for the rest of the voyage. In ships trading through tropical latitudes, where fans are generally installed in all first-class cabins, some note on this subject might be incorporated to advantage among the usual directions to passengers printed on the backs of passenger-lists or in the cabins themselves.

The same remarks apply to the tin wind-scoops fitted to cabin-ports. When used, a towel should be hung up in front of them to break the direct current of air, and ventilate the cabin as well by acting as a small punkah.

Pneumonia.—While the average incidence of acute lobar pneumonia is far less at sea than on land, yet the author is inclined to believe that the mortality rate is relatively higher. When it occurs the local conditions on board a ship are not favourable to the proper treatment of the disease. The main obstacle is always encountered in the matter of satisfactory hygienic surroundings. The weather may necessitate cabin-ports being kept shut; the patient may possibly be berthed in an inside room, with defective or deficient ventilation, and there may be no other place in the ship to put him. These in themselves constitute an urgent reason for

proper hospital accommodation for all classes (*vide* Chapter XII.).

As soon as a case of pneumonia is diagnosed the surgeon's energies should be directed towards obtaining plenty of fresh air for his patient, using every artificial means, such as fans, etc., to this end. If the state of the weather permits, there is nothing against having the patient brought up on deck, the bed being screened off. Just prior to the crisis he should be taken down below to as airy a cabin as possible, and due precautions against a post-critical chill taken.

With regard to actual treatment, beyond plenty of fresh air and the ordinary routine of sick hygiene, including oral antisepsis, the author is content to assume an attitude of masterly inactivity. Even symptomatic treatment should be delayed rather than pushed, having due regard to the state of the heart, as evidenced by stethoscope and watch.

Want of sleep, the great bugbear of these cases, should be dealt with by measures other than drugs. Cold to the head, tepid or cold abdominal sponging or compresses, hot-water bottles to the feet, etc., are all beneficial in calming the patient, if not actually inducing sleep. An exception to drugs may be made in favour of paraldehyde. Half-drachm doses, once or twice repeated, have proved very satisfactory in practice. The drug can only be given, however, if the patient is conscious and can be warned of the possible choking effect of the draught ; if unconscious, it should be withheld for this reason.

The use of oxygen has been dealt with elsewhere (*vide* p. 34), and may be the means of saving life.

Pneumonia cases will be met with more among the crew than passengers, especially among members

of the engine-room and stokehold crews, also in those engaged in the cold-storage process. Their occupation exposes them to great heat, and they are liable to stand about afterwards in cold places to get cooled down. With regard to those in refrigerator rooms—butchers, storekeepers, etc.—they should always be advised to wear woollen clothes when on duty, and also to guard against getting chilled.

Convalescents should spend as much time as possible out in the open. No member of the engine-room or stokehold should be allowed to return to duty until the whole process has satisfactorily cleared up. Cases in which there is some residual friction or crepitation to be heard on auscultation, while perfectly well in themselves, are very liable to complications on the slightest indiscretion.

Frost-bite.—The general tendency of a person affected by frost is to plunge the affected part into the first hot water available. This is absolutely the worst possible thing to do. The part should be rubbed with snow, if obtainable, or a poultice of crushed ice bandaged on, and allowed to melt *in situ*. Failing either of these, the area should be sprayed with ether, ethyl chloride, or other form of evaporating lotion, for ten or fifteen minutes, the volume of the spray being gradually diminished towards the end of the time. Afterwards the part should be lightly wrapped in plain cotton-wool.

Chilblains.—There is no satisfactory form of treatment for this condition beyond removal of the exciting cause, when the parts return to their normal state. Some relief may be obtained from a paste of starch made with cold water and applied at night-time, or painting the parts with collodion.

Insomnia.—This is not an uncommon condition among passengers, particularly as so many of them have been

sent to sea for a change on account of it. Everything is strange, and the unusual and unavoidable noises of a ship at sea seem at times to aggravate the trouble. Many patients will come provided with the newest hypnotics in tabloid, pill, or powder, the names of most ending in ‘-al.’

Where the usual causes of insomnia are non-existent, or have been treated without success, nothing is so effective in producing sleep as paraldehyde. Its nauseous taste and odour are naturally very much objected to, but can be minimized by suitable vehicles. The advantage in cases of simple insomnia, without pain or mental disturbance, are rapidity of action, uniform dosage—a drachm will usually suffice, and need not be increased—and an entire absence from all heaviness and lassitude the next morning, after a night of wholesome, refreshing sleep. Its drawbacks are that it is ineffective where pain is in question ; its elimination by the breath for about twenty-four hours after taking ; and the occasional vomiting and profuse perspiration which may follow its administration. The following is a good method of giving it :

R̄ Paraldehyde	..	..	..	ȝi.
Tinct. aurant.	..	..	..	ȝii.
Syrup	..	..	..	ȝi.
Aquam	..	..	..	ad ȝi.ss.

Sig. : To be taken at bedtime.

Another method is to combine it with an equal volume of brandy or whisky, which masks the taste to a considerable degree without affecting its action. If indicated, potassium bromide (ȝss. *pro dosa*) may be added.

Menstrual Disorders.—Now and again patients will be met with at sea in whom the menstrual functions undergo

some change as to frequency, duration, and quantity of flow. In some cases there is pain or an increase in the usual amount. The cause of this is uncertain. Some authorities attribute it to the continuous vibration of the ship; others, including the writer, to a state of plethora commonly induced by life on board. Whatever the cause, the fact remains that the function undergoes a change in some instances.

If menorrhagia is present, the patient should be kept perfectly at rest in bed, the bowels being freely purged, and a combination of iron and ergot administered three times a day. For severe pain, hot applications locally and phenacetin (grs. x.) every four hours may be tried.

Quinine should not be given, even in the scale preparations, owing to its stimulating effect upon the uterine muscle and a tendency to produce menorrhagia. Where a malarial state occurs in the same case, it must be treated with phenacetin or arsenic, and not by quinine, for the same reason. Should these not have the desired effect, then quinine may be given very cautiously in small doses. The foregoing is much questioned by some, but the author's experience so far warrants this statement.

It is generally admitted that every woman should be kept in bed during the menstrual period. There is just as much reason, if not more, for this at sea than elsewhere. Also, the opportunity of being able to remain in bed at sea without neglect of other duties should not be lost sight of when advising patients to this effect. On land this is usually the first and very pressing objection-raised by them.

In most companies there is a regulation to the effect that meals cannot be served in state-rooms or other specified places except by permission of the surgeon.

This, like all other regulations, has two distinct points of view. Its non-observance tends to disorganize the whole routine of the victualling staff, particularly when the ship is full of passengers ; it is also more or less of a dead-letter as far as first-class passengers are concerned. In other parts of the ship its rigid enforcement depends upon the amiability and desire on the part of the stewardesses to do unnecessary work.

The writer makes a point of notifying stewardesses in all classes that ladies can remain in their bunks during the catamenial period without his permission being asked. In this manner the regulations can be observed without undue inquiry into details or personal privacy of passengers.

Malaria.—Cases of malaria are occasionally met with in some ships, and constantly in others, according to the particular trade in which they happen to be engaged. While having no departure from the orthodox lines of treatment to offer beyond the superiority of bisulphate of quinine over other salts of this drug, readers are cautioned to remember the possibility of malaria being the cause in cases where the diagnosis is obscure. Patients coming from malarial districts are so used to the condition that they are rather apt to neglect mentioning it when consulting strange medical men ; it is such a matter of everyday life with them that it calls for no special comment on their part.

Debility and Exhaustion.—During and after the passage of a ship through the tropics a large number of people will be found who complain of ‘ nerves ’ and being generally ‘ run-down.’ The usual symptoms are anorexia and thirst, œdema of feet and ankles, diminution of urine, and a general feeling of malaise. The œdema of the feet is soft, and easily controlled by

pressure or the recumbent position, disappearing with the advent of cooler weather.

The feet should be kept well raised, and bathed twice or three times a day with cold sea-water, being lightly bandaged if indicated. As to diminution of urine, this is explained by the hyperactivity of the skin, which, if very great, may lead to a certain amount of 'clogging' of the kidneys, with mild uræmic symptoms—headache, drowsiness, etc. A dose of gin diluted with tonic water two or three times a week is the best and most pleasant form of mild diuretic. More marked cases naturally require more active lines of treatment.

When the cold weather is reached, polyuria invariably sets in. Passengers at once get alarmed at what they consider to be symptoms of diabetes or Bright's disease, until reassured that it is only a natural reactionary phenomenon. Two useful 'tonic solutions' are given below :

R	Quin. sulph.	..	..	gr. i.
	Acid. sulph. dil.	..	..	℥ x.
	Tinct. nux vom.	..	..	℥ v.
	Tinct. rhei	..	..	℥ ss.
	Syrup. simplex	..	..	℥ ss.
	Aq. chloroformi	..	ad	℥ ss.

Sig. : A tablespoonful thrice daily before food.

R	Liq. strych.	..	..	℥ ii. ss.
	Acid. phosph. dil.	..	..	℥ xv.
	Tinct. card. co.	..	..	℥ xx.
	Spts. chloroformi	..	..	℥ xx.
	Aquam	..	ad	℥ ss.

Sig. : A tablespoonful thrice daily after food.

A concentrated stock of these solutions can be kept in the surgery, as it will save time on a full voyage, when nearly everybody demands 'a tonic.' Where possible,

the author discourages the use of drugs for these cases, urging that the cold weather will set everything right. For want of something better to do, some patients, however, are very apt to become introspective and miserable, which condition is accentuated if the surgeon makes light of it. The tonic is certainly not without value, and it is sufficiently nasty to impress those taking it with its powers.

Glaucoma.—Five cases of acute glaucoma have arisen in the writer's practice while at sea. Eserine tabloids should always be carried in case of emergency. Failing these and the assistance of an ophthalmic surgeon within a reasonable time, the eyeball must be punctured. This is best performed under eucaine with a sharp scalpel. The sclerotic should be incised behind the cornea in the upper and outer quadrant of the globe, with the cutting edge of the knife turned outwards. A half-turn should next be given to the blade, so as to allow of the escape of fluid, and thus relieve intra-ocular tension.

An iridectomy is not lightly to be undertaken by one unskilled in its performance, notwithstanding the apparent ease of such an operation according to the written descriptions. Massage of the eyeball is practically useless, besides being exquisitely painful. A blister or leech might be applied over the temporal region.

In connection with this subject, readers are warned to remember the 'bilious' nature of symptoms in the early stages, and never to fail to test the tension in all persons over thirty, especially women, who complain of 'bilious headache.'

Syphilis.—The conditions attaching to ship-practice are akin to those of the Services for the routine treatment of syphilis by intra-muscular injection. Apart from

the undoubted value of this mode of treatment, the 'liner' offers an exceptional opportunity for its systematic administration. The surgeon is able to watch his patients closely, in certain ships perhaps for a year at a time, allowing the intermissions of treatment to occur while the ship is in home-port.

The writer's practice is to institute 'injection parades,' making regular attendance compulsory, under penalty of discharge of defaulters at the next 'signing off.' With but two exceptions, this system has worked admirably in a small series of fifty cases so treated.

In such a limited range of cases the soluble salts of mercury have proved superior to the insoluble metallic preparations. The great drawback to their use is the frequency of injection required, and the pain necessarily entailed thereby. This is no small matter where men who have hard manual labour to perform are concerned. In firemen and trimmers the dorsi-lumbar region is the best site for injection. The subscapular and gluteal areas are too much implicated in the work of shovelling coal, and painful nodules are being continually irritated in consequence. This in itself may cause men to demur at the treatment.

The salt mostly used has been the succinimide of mercury, made up as follows:

R Hydrarg. succinimide	..	gr. $\frac{1}{5}$
Cocain hydrochloride	..	gr. $\frac{1}{4}$
Aq. dest. et sterilizata	..	℥ x.

The patient should be started on an injection every other day until ten have been given. Four days' rest is allowed, and another course of ten, with four days' intermission. The third series of ten is given every third day, with a week of rest at the conclusion. After

the fourth series a month's rest is allowed, and then the whole is recommenced.

If 'secondaries' become at all marked, the strength of injection is gradually increased to $\frac{2}{5}$ grain in alternating doses, or as indicated. As a matter of fact, in the author's limited experience secondary manifestations have been very slight, and when occurring have readily yielded to increased doses. Painful oral lesions are best relieved by free local application of chromic acid (grs. x. ad $\bar{3}$ i. of distilled water). Smoking is strictly prohibited in these cases, and also as general routine advice.

If injection treatment does not recommend itself, an excellent method of oral medication consists of Hutchinson's pill, to each of which is added quinine sulphate :

R Hydrarg. \bar{c} creta.	} $\bar{a}\bar{a}$ gr. i.
Pulv. ipecac. co.	
Quin. sulph.	

The exhibition of quinine in early stages has a most beneficial effect in reducing the cachexia and general feeling of malaise so commonly met with. If cinchonism results, the quinine can be omitted or reduced.

If inunction is preferred, it can be given by spreading the requisite amount of mercurial ointment on a piece of brown paper cut out in the shape of the foot. This is applied to the plantar surface, and the sock drawn over it. In this fashion the patient absorbs quite a fair amount of metal, inuncting himself while walking about in the ordinary performance of his duty.

During a mercurial course, whether intramuscular or otherwise, the mouth should never be neglected. On this point patients are rather apt to diverge from the strict lines of treatment laid down if encumbered by mouth-washes, etc. An excellent and convenient

method of getting over this difficulty is by systematic use of a chlorate of potash tooth-paste. There is one made by Beiersdorf of Hamburg from the prescription of Professor Unna, and put on the market under the name of 'Pebecol.' It resembles closely the one usually prescribed at Aix.

In the later or 'iodide stage' of treatment a simple way of giving the drug is to make up the requisite dose per $\frac{1}{2}$ ounce in an 8-ounce bottle. The patient is directed to take a tablespoonful three times a day in tea, coffee, or cocoa. All of these mask the taste far better than milk. A better way is for the patient to put the necessary number of 5-grain tablets into his beverage. In this fashion plenty of fluid is absorbed, and patients can also get into the habit of taking their medicine quite openly at meals, instead of having to withdraw afterwards, and then most likely forget to take it.

When starting a patient on iodide, no matter the basic component, it should be remembered that a 15-grain dose will often be better tolerated than one of 10 grains. The author has never seen any discomfort arising from a 15-grain dose *ab initio*.

While on the subject of venereal disease, surgeons are strongly advised to extend all sympathy and attention to members of the crew affected with such. Otherwise, if this is not done or any moral admonition given on the subject, the men will either fall into the hands of quacks ashore, or will tinker about with some prescription handed from one to another, only reporting themselves when almost beyond aid. Some surgeons make a practice of charging fees to members of the crew attended for this and allied complaints. Into the ethics of this it is not for the writer to enter, but the fact remains that a surgeon is carried for attendance on the

crew and steerage passengers gratis, and therefore for him to demand fees for treatment from such seems a violation of the Merchant Shipping Act.

The time devoted to keeping a private record of cases is well spent, and does not take more than fifteen minutes a day at the outside, if regularly kept up. A specimen ruling is given in the Appendix, and readers are strongly advised to adopt some system of this nature.

Apart from a clinical record, it affords a clear history of the case in the event of a subsequent demand for details.

In conclusion, ship-surgeons cannot fail to be impressed by the marked benefit in suitable cases derived from the *vis medicatrix naturæ* at sea. Surgical cases do exceedingly well ; suppuration, when it occurs, yields to simplest treatment. In fact, there is a tendency for a medico to grow careless in his methods of surgical cleanliness, as there is so little call made upon them as a rule. Medical cases also do well, generally speaking, although, owing to a certain number of unsuitable ones finding their way on board, the total beneficial results are not so great as might be expected.

CHAPTER XII

HOSPITAL CABINS

WITH the almost daily increase in size of ships, and the corresponding increase in the number of passengers carried, the question of hospital accommodation on board arises proportionately in consequence.

Speaking generally, the subject of hospital cabins is one which must be considered from two separate stand-points—that of the owner and that of the ship-surgeon and his patient combined. The interests of the former are diametrically opposed to those of the latter.

To the ship-owner all hospital space represents so much net loss from the earning capacity of the ship—in other words, it is cargo or passenger space wasted. A ship may go voyage after voyage without the incidence of a single case requiring hospital accommodation. On the other hand, where patient and physician are concerned, both naturally look to obtain something of the kind under the circumstances.

There is yet another point of view, which is also an impartial one—the law. This is represented in the Merchant Shipping Acts enforced by the Board of Trade. Practically speaking, it is only from this aspect of the question that satisfactory regulations for its installation can be obtained. All others must necessarily be biassed one way or the other.

Taking everything into consideration, the requirements of the Board of Trade in the past with respect to hospital accommodation on ships have not been as efficient as could be desired. In other words, they have not been commensurate with the possible demand engendered by the great development in size and alteration in design of modern passenger-carrying ships. Where the ships of twenty years ago carried passengers in hundreds, those of to-day sometimes carry them in thousands.

Schedule XI., Section ii., of the Merchant Shipping Acts of 1855, and to all intents and purposes still in force with regard to the 'emigrant ship' of to-day, reads as follows :

'The space set apart for a hospital shall be under the poop or round-house, or in any deck-house which shall be properly built and secured to the satisfaction of the Emigration Officer at the port of clearance, or on the upper passenger deck, and not elsewhere.'

The above, brought into law at a time when sailing ships were employed in the transport of large numbers of emigrants to the Colonies, provided quarters for the sick, which insured as much rest, quietness, and isolation as could be obtained at sea. Applied to the latter-day emigrant steamship, such situation (under the poop) is the worst which could possibly be devised, in so far as the comfort and accommodation of the sick are concerned.

It may be mentioned that the poop is the aftermost part of the ship. Some ships have a long poop, others a short one. With certain exceptions, to be cited later, all the hospital cabins are perforce situated under this structure, some being a little farther forward than others, according to the individual design of the ship in ques-

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tion. They all, however, present the same drawbacks, which are :

1. **Extreme and Incessant Vibration.**—This is a continuous factor, except when the ship is in port. It is added to in some vessels by close proximity of the steering-engine, which is practically never still at sea, and whose movements are most irregular. Such is scarcely an ideal situation, say, for a case of appendicitis, enteric fever, thrombosis, meningitis, acute alcoholic delirium, etc., all of which are by no means rare in the ship of to-day carrying a large number of emigrants.

2. **Accentuated Motion of the Ship.**—This, again, is much increased if the vessel is forging into a 'head sea,' with occasional racing of propellers.

3. **Noise of Traffic on the Deck above.**—When the weather is fine, and deck-games, such as quoits and bull-board in particular, are in full swing, there is no chance of rest for the sick. One cannot always rope off and deny that part of the deck in a full ship for the sake of a single case, no matter what its nature.

4. **Unhygienic State of Hospital Cabins.**—However well ventilated a ship's cabin may be, it is never an ideal place for the treatment of disease. Under existing circumstances, if the weather is bad enough to necessitate the ports being closed, and kept in this state for any length of time, a person is indeed 'cribbed, cabined, and confined,' even if in a healthy condition. It speaks volumes for other local conditions that the percentage mortality of pneumonia at sea is not very much greater than it is. It could undoubtedly be reduced by more favourable sick-quarters.

Bearing these points in mind, the question may be asked : Is the hospital accommodation officially required

at present suited to the purpose for which it is intended? The answer is a decided negative. The only advantage derived from the existing situation right aft is that of more or less complete isolation in case of infectious disease. Any reader who has had medical charge of emigrant ships will bear out the above remarks. Further examples are unnecessary. In fact, the foregoing points must be obvious even to a non-seagoing practitioner.

The most recent legislation on this subject, the Merchant Shipping Act of 1906, is practically the same, with the exception that the words 'poop or round-house' are omitted, leaving the situation as follows :

'The spaces set apart for such hospital accommodation shall be on or above the uppermost passenger deck, and shall be placed to the satisfaction of the Emigration Officer at the port of clearance.

'The space set aside as an infectious hospital shall be in as isolated a situation as possible.'

It is also specified that one hospital shall be designated as 'infectious,' and used for this purpose only.

The Act is not retrospective, and only applies to ships laid down after January 1, 1908. No mention whatever is made in any of the Acts of hospital accommodation for members of the crew and saloon or 'cabin' passengers, as they are technically termed.

The alternative situation mentioned in the old Act, '... or in any deck-house or on the upper passenger deck,' is rarely made use of, except in certain ships carrying emigrants from Mediterranean ports to the United States.

In these the accommodation is situated well amidships, and, in addition to isolation cabins, comprises 'wards' for men and women, with the usual offices (bath, lavatory, etc.), dispensary, and an operating-room

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replete with everything modern medical science and art can devise for the benefit of the sick. This is built and fitted to the specifications of the foreign authorities under whose licence these ships are operated.

Separate hospital cabins for saloon passengers and members of the crew should also be provided. As previously mentioned, there is no clause in the Act calling for such. The hospital accommodation is intended solely for the use of steerage or emigrant passengers, and its employment for cases arising in other parts of the ship is an offence against the Merchant Shipping Act.

Some ships, it is true, have spare, so-called hospital cabins for saloon passengers and members of the crew, but it is not a general rule to find them.

In the modern liner, carrying a crew of two hundred or more men, some cases requiring proper hospital accommodation are bound to occur. Neither the 'glory-hole' of the stewards nor the 'fo'c'sle' of sailors and firemen is an ideal place for a sick man. This is the case at present, unless the surgeon is prepared to make use of the steerage hospitals. The men, moreover, are not under the same control of the surgeon as to the carrying out of diet, etc., as they would be in a proper hospital cabin.

Where saloon passengers are concerned, cases sometimes arise when the ship is absolutely full, and with no vacant cabin. The results are better left to the reader's imagination. As a general rule, in these instances some minor official of the ship has to turn out of his cabin, much to his own discomfort and that of the person told off to receive him. The room is then appropriated as a make-shift hospital, with all the drawbacks and inconveniences attaching to such.

It is true that hospital accommodation is not of actual daily necessity at sea, yet at the same time need for it may arise at any moment in any part of the ship. It should therefore be provided for exactly the same reason that a lifeboat is made compulsory. In fact, nowadays there is much less call for the ordinary ship's lifeboat than for a properly equipped hospital.

The foregoing may appear to be an indictment of the Board of Trade for neglect of the medical comfort and welfare of those who go to sea, either as passengers or workers. So indeed it is—a relation of sins of omission to keep pace with the times. It must, however, be mentioned that the position of the Board is somewhat peculiar. As it is, British shipping is already very much handicapped officially in competition with that of other nations, and any large amount of space set aside for hospital purposes in the usual locality would mean further odds. Nevertheless, there is no reason why some such provision as suggested should not be called for by law without imposing too much hardship upon the steamship owner.

It need not necessarily be on the same extensive scale as laid down by other countries. For example, that required by the Italian Government is far in excess of any average actual demand, whereas that ordered by the British Board of Trade is purely nominal at best, and totally inadequate in time of stress. There are no facilities for the performance of the most trivial minor surgery requiring an anæsthetic. Everything must be improvised as occasion demands. Naturally, it is not possible, or even necessary to instal a complete operating theatre in a ship ; but nevertheless there is a bare limit fixed for all things, and even this is not obtained in passenger ships of to-day. As long as nothing happens,

all is well, but the occasion must arise when the want of 'a bare limit' may be the means of losing lives.

Every ship's surgery is fitted with a settee, which for this purpose serves its function admirably, but for anything further it is quite useless. The pleasures of giving an anæsthetic or operating upon a patient in an ordinary ship's bunk must be experienced to be thoroughly appreciated. Under such conditions operations have been performed in the past, and no doubt will be in the future, with more or less success, too, which latter is due entirely to the surgeon himself and his capability of dealing with the situation. Yet, at the same time, there is no real reason for this, and some provision for serious surgical work should be made compulsory by those whose duty it is to look after the welfare of seafarers of all descriptions.

The main difficulty in arranging for official hospital accommodation is the impossibility, or rather impracticability, of legislating definitely and satisfactorily for all kinds of ships. Different trades vary considerably in their special features, and require ships to be built in conformity with such. Hence, what is an ideal ship for one trade is practically useless for any other. An Atlantic greyhound employed on a voyage to the East through the Red Sea would be just as unsuited for that service as a P. & O. Bombay mail-steamer sent over to the United States on a mid-winter voyage. They are both special services, having special conditions of their own. The same factor applies to hospital cabins at sea. No hard-and-fast regulations can satisfy all requirements.

What is wanted is a general outline regulation calling for proper accommodation for passengers of all classes and the crew, including some facilities for operative

work. The special details should be left for the Board of Trade to decide upon in regard to each individual type or class of ship.

The ideal of ship-hospital accommodation is that it should be self-contained in some central part of the vessel, easy of access by all classes, and yet removed from general passenger and crew spaces. To have it broken up in different parts of the ship requires more working staff than is actually necessary for the ordinary run of voyages.

As to situation, many ships have a considerable amount of deck-space, particularly on the uppermost deck of all, which is not used by passengers or others. Here a self-contained deck-house could be built. This situation would insure freedom from noise, thorough hygienic conditions in all weathers, complete isolation, and privacy. Owing to its height above the water, the one main objection is accentuated motion if the ship is rolling. This in itself is but a minor detail in the modern leviathan as compared with the enumerated advantages. The ship, too, would also gain much space below decks by this arrangement.

The 'house' should contain ward-cabins for men and women; isolation cabins, with bath and lavatory attached to each; a small operating-room, in which a good top-light could be obtained from skylights; and, finally, the dispensary. Quarters for the hospital steward, a small scullery for cleaning and storing hospital utensils, etc., would be included. A shoot for the direct disposal overboard of hospital refuse, soiled dressings, etc., should be installed on both sides of the ship, and lead to the water-line.

At least two cabins should be fitted for the reception of lunatics. Cases of this nature are some of the most

difficult that a ship-surgeon is called upon to manage. In most instances extempore accommodation has to be made by stripping ordinary passenger cabins of their fittings, causing perhaps damage to the rooms, to say nothing of the discomfort to other passengers in the immediate vicinity from the shouting and ravings of an acute maniac.

If the general design of the ship permitted, the surgeon's quarters might also be situated in the hospital section, thus making the whole department self-contained and centralized. A telephone to the ship's office and various central parts would do away with some of the drawbacks of having the medico situated away from the general quarters, although this is already the case in some of the larger ships, and is not a matter of vital importance.

The question of providing separately for the different classes is one which could be settled by the owners. The crew should, however, be accommodated in the hospital when indicated. A man off duty on account of ill-health should be kept separate from those on duty for his own benefit, and also to discourage others from any desire to go on the sick-list.

The cabins themselves should be as plain as possible, the floors being paved with tiles or 'litosilo' composition, and the dividing bulkheads painted with white enamel, so that the whole can easily be washed down with antiseptics if desired. Hot and cold water services, salt and fresh, steam or electric heaters, etc., should also be provided. A steam-sterilizer for clothing and bedding, etc., should be installed in close proximity on the deck.

Access to the hospital house should be obtained from the deck outside, and by an inside companion for use

in bad weather. Provision should also be made for the bringing of stretchers to and from the hospital.

Before a ship is laid down, details of her hospital accommodation according to general specifications should be submitted to and approved by the Board of Trade, and not, as now, passed and approved after the ship is built and practically ready for her maiden voyage.

The Board of Approval should not be composed only of sailors without knowledge of medical requirements, or of medical men with no nautical knowledge. It should be formed of medical men with sufficient maritime experience of recent date, acting in conjunction with the ordinary marine experts appointed by the Board of Trade in these instances.

A happy medium is the desideratum, and neither sailors nor surgeons can be expected to find this alone and unaided. It is just as difficult for a sailor to properly appreciate the niceties of modern medical methods as it is for an eminent surgeon to conceive the possibilities of operating without sterilized air, gloves, and what-nots; yet this is the actual state of the inexperienced on both sides.

The foregoing may appear to be somewhat of an extreme ideal, taken with no regard for any but the medical aspect, but nevertheless the writer is sanguine enough to believe that the requirements of all concerned could be adequately satisfied by some such scheme as outlined—this, too, without undue encroachment or hardship upon the ship-owner. Throughout the whole of its existence the medical side of the mercantile marine has never asserted either its importance or its requirements. The result of this is to be seen in the somewhat casual and offhand manner with which medical matters are generally treated, from the law downwards,

CHAPTER XIII

AMERICAN SERVICE

ON land the ranks of the medical profession contain specialists and general practitioners. The former term may not inaptly be applied to surgeons engaged in the American passenger service, as compared with those practising medicine on the high seas elsewhere. To justify such a definition is the aim of this chapter, in which an attempt is made to give a rough outline of the work. To the ordinary duties of a ship-surgeon are added those connected with the entry of aliens of all classes into the United States.

Most civilized countries have adopted what may be termed generically as 'Immigration Restriction Acts.' The extent of these and the rigidity of their application naturally varies in different lands. In none of them, however, has the immigration routine reached that pitch of perfection as in the United States of America. The working of the service must be seen to be properly appreciated.

The 'speciality,' then, of the American trade is that extent of knowledge requisite for satisfactory discharge of the duties of a ship-surgeon under the special regulations governing them. It may be summed up briefly as consisting of a rapid and accurate decision upon the eligibility or otherwise of all intending emigrants to the

United States, practically at the time appointed for embarkation.

Theoretically this should not be such a difficult matter for anyone so trained to observation as a medico, but in practice there are many pitfalls for the tyro, most of which being due to the unusual nature of the work, which differs considerably from that of the ordinary routine of clinics and general practice.

The aim of all immigration restriction, as its name implies, is to prevent the admission into the country of any person considered undesirable, no matter the cause giving rise to such. This may be on account of the race, colour, or other personal attributes of the would-be immigrant. In the United States the restriction is confined to the Chinese race ; to the inability of an alien to support himself after admission, and the likelihood of his becoming a charge on the State funds in consequence ; and also to his being the victim of certain diseases or pathological conditions specifically mentioned by law. Among the latter may be specially instanced trachoma and favus.

As far as the surgeon is concerned, the following are the classes of ' undesirables ' with whom he will have to deal :

1. Idiots.
2. Imbeciles.
3. Feeble-minded persons.
4. Epileptics.
5. Insane (or insane within five years previous to landing, or who have had two or more attacks of insanity at any time).
6. Persons likely to become ' a public charge,' from whatever cause arising.
7. Persons affected with tuberculosis in any form, more especially the chronic pulmonary type.

8. Persons affected with a loathsome 'contagious disease.'

9. Persons so mentally or physically defective as to affect their ability to earn a living—in other words, persons likely to become a public charge from causes existing prior to landing.

The foregoing are embodied in an extract from the Immigration Law appended below :

Section 9 of the Act of February 20, 1907, stipulates—

' That it shall be unlawful for any person, including any transportation company other than railway-lines entering the United States from foreign contiguous territory, or the owner, master, agent, or consignee of any vessel, to bring to the United States any alien subject to any of the following disabilities : Idiots, imbeciles, epileptics, or persons afflicted with tuberculosis or with a loathsome or dangerous contagious disease ; and if it shall appear to the satisfaction of the Secretary of Commerce and Labour that any alien so brought to the United States was afflicted with any of the said diseases or disabilities at the time of foreign embarkation, and that the existence of such disease or disability might have been detected by means of a competent medical examination at such time, such person or transportation company, or the master, agent, owner, or consignee of any such vessel, shall pay to the collector of Customs of the Customs district in which the port of arrival is located the sum of one hundred dollars for each and every violation of the provisions of this section ; and no vessel shall be granted clearance papers pending the determination of the question of the liability to the payment of such fine, and in the event such fine is imposed, while it remains unpaid, nor shall such fine be remitted or refunded : Provided, That the clearance may be granted prior to the determination of such questions upon the deposit of a sum sufficient to cover such fine and costs, such sum to be named by the Secretary of Commerce and Labour.'

From the above, 'undesirables' may be divided into two general classes for all practical purposes :

A. Those who are to be excluded by reason of the existence of a disease or an abnormal condition, the nature of which being expressly stated by the law to constitute in itself ground for such exclusion.

B. Those suffering from disease or defect, mental or physical, which may be regarded as conclusive or contributory evidence to justify exclusion of the person as 'an alien likely to become a public charge.' 'L.P.C.'s' is the technical term for such.

Under Class A may be given the following sub-groups :

1. Dangerous Contagious Diseases—

Trachoma.

Pulmonary tuberculosis.

2. Loathsome Contagious Diseases—

Favus.

Sycosis.

Tinea tonsurans.

Leprosy.

Gonorrhœa.

Syphilis.

3. Insane Persons.

4. Idiots, including Epileptics.

The range of cases which may conceivably come under Class B is so varied that it is almost impossible to state definitely what to pass and what should be excluded. A general outline is given to act as a guide, but at the same time it must not be taken as conclusive, either for or against rejection, for reasons to be subsequently mentioned.

1. Hernia.—In considering hernia the points to be borne in mind are the age, occupation, and probability

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of an operation being performed. If the person is old, he should be rejected, unless going to relatives well able to support him.

2. **Valvular Heart Disease.**—Occupation of person and compensation of the organ must be well considered.

3. **Pregnancy** (if illegitimate).

4. **Poor Muscular Development**, including the undersized, etc.

5. **Sexual Physical Malformations.**—Arrested development, etc.

6. **Chronic Rheumatism.**

7. **Nervous Affections.**—Locomotor ataxia, spastic paraplegia, infantile paralysis, etc.

8. **Malignant Disease.**—Carcinoma, sarcoma.

9. **Deformities.**—Kyphosis, lordosis, mutilation or deficiency of limbs.

10. **Varicose Veins of the Lower Extremities.**

11. **Premature Senility**, as indicated by atheroma of bloodvessels.

12. **Defects of Vision.**—Loss of one eye, refractive errors of high degree, optic atrophy, etc.

13. **Teeth.**—A person with a mouth full of foul, suppurating stumps may be deemed liable to become a public charge.

Thus it will be seen how varied the application of the law may be. In the main, it calls for the admission of none save those in good mental and physical health. Where divergencies from this standard arise, there may in many instances be mitigating circumstances regarding that person's admission. These must necessarily be taken into account before final rejection, unless, of course, the case is obviously inadmissible on the face of things. Mitigating circumstances include the sex and occupation of the applicant ; the status and position of

relatives or friends already resident in the United States, and their ability to support him should occasion arise.

To gain this knowledge of 'mitigating circumstances,' the novice should frequently visit Ellis Island, the headquarters of the Immigration Department in New York, or the corresponding institutions at other ports. Here every courtesy and facility for learning will be extended to him, resulting in a greater accuracy and diminution in the number of persons rejected on sailing day.

The fine of \$100 (£20), referred to in the Act, is only applicable to cases of idiots, imbeciles, epileptics, persons afflicted with tuberculosis, a loathsome or dangerous contagious disease, if such might have been detected by competent medical examination at the port of departure. All other cases are simply deported under another section of the Act at the expense of the company bringing them into the country. The liability to deportation of aliens extends for a period of three years from the time of arrival (last time of arrival in case of those who have gone over to Europe and returned).

Another section of the Act, which it is unnecessary to quote *in extenso*, stipulates for the liability of the ship to a fine of \$10 (£2) for each case of incomplete or incorrect supply of details respecting alien passengers as required by law (*vide Manifests, infra*).

Before describing the actual work of the surgeon, there are certain items correlated to it which require some explanation to facilitate a proper understanding of the same.

Manifests.—The system of checking passengers enforced by the American authorities consists of a manifest containing pertinent details. Each passenger—first, second, or third class—is manifested on special sheets

supplied to the ship by the immigration authorities. These are commonly known as the 'Thirty Sheets,' from the fact that they must not contain particulars of more than thirty passengers on each (*vide* Appendix VIII.). Prior to arrival in America each sheet must be signed and sworn to separately as regards accuracy by the master and surgeon of the vessel. (N.B.—Facsimile signature stamps are not permissible for this purpose.)

Columns 23 and 24 of the Thirty Sheets have to be filled in by the surgeon himself from observations made personally or reported to and confirmed by him during the voyage. It is the manner in which these columns are filled up which will in a great degree settle the question of the ship being fined or not, if she is liable for one. Hence everything likely to give rise to doubt, etc., should be manifested, as such document is deemed to be a sworn statement.

During the passage the surgeon should keep a sharp lookout for all items of this nature, and stewards-in-charge must also be told to report any case they happen to notice.

Inspection Cards.—When booking their passage, third-class passengers are given what is termed an 'Inspection Card.' This card bears two numbers, or a letter and two numbers, corresponding to the particular Thirty Sheet and line on the sheet respectively containing the information about the person required by law. The card also contains spaces for other items, including one for vaccination, which has to be signed by the surgeon (*vide* Appendix VIII.). For this purpose a rubber stamp is allowed, and one should be obtained bearing the degree or diplomas, in addition to a signature facsimile.

When passengers land, this card is pinned or tied to

some part of their clothing, and thus, in case of doubt, all particulars can rapidly be looked up in the Thirty Sheets by turning to the sheet and line corresponding to the numbers on the card. This method of labelling passengers is a great saving of time to the immigration authorities, as where there is a polyglot assembly of passengers to be dealt with the data required can be obtained at once.

Down the side of the card is a column for daily inspection of passengers, which is supposed to be made by the surgeon, in accordance with quarantine regulations. Each card is punched out as the holder passes the surgeon. Needless to add that a regulation of this nature, involving, perhaps, the daily rounding up of 1,500 or more passengers, is one of considerable magnitude, and at ordinary times is probably more honoured in the breach. During epidemics in Europe, or at other times considered necessary, a warning reminder notice of this regulation is usually sent to the various steamship offices by the quarantine authorities, and then, of course, the rule must be enforced.

Citizen Passengers.—Citizens of the United States, if on board in sufficient numbers, are manifested on separate sheets, and, while not actually debarred from entry on account of medical or other disability, all such detected should be manifested. To save time when embarking a large number of people, all citizens should be directed to have their 'papers' in readiness when passing the surgeon, to avoid detention or rejection. Stewards attending must be directed to notify those waiting in the line to embark.

Aliens desirous of becoming naturalized citizens must first take out what are called 'Intention Papers.' After a period of residence they are granted full citizenship.

The certificate given to each on filing Intention Papers, or 'First Paper,' as it is commonly called, does NOT constitute a citizen. The holder of such must be classed as an alien, and hence is liable to all alien drawbacks. On embarking, many passengers will be found who dispute this, and get highly indignant when told they are still aliens and have not yet the right of unrestricted entry.

All aliens should be medically inspected on embarkation, irrespective of the class in which they are travelling. Occasionally persons previously rejected, or who have been rejected as third-class passengers on embarkation, will endeavour to enter the country by travelling second class, or even first. Hence all due precautions should be taken to prevent anything of this kind happening.

Forged or irregular papers are by no means unknown, although naturally a surgeon can hardly be expected to become an expert in such documents.

Deported Passengers.—The day previous to or on the actual day of departure from the United States the immigration authorities send the deported passengers on board. These are persons who have since admission become a public charge, or are for other reasons liable to be returned to the country whence they came.

The master of the ship or his deputy, the chief officer, has to give an official receipt for all persons so placed on board, and from that time becomes responsible for their safe custody. As a rule, they are handed over to the surgeon for custody in the ship's hospital until such time as the vessel has left American waters, when they are berthed according to indications. The medical cases naturally remain in charge of the surgeon. Thus the surgeon is made responsible to the master for the care of all deported persons.

Prior to the last gangway being put ashore at the moment of sailing, an official from the Immigration Department comes down and takes a tally of deported passengers, to see they are all on board as ordered. In the event of a person signed for by the ship making his escape, a heavy fine may be imposed, and the master is liable to arrest. The fine may amount to \$1,000 (£200).

Accompanying the more serious cases of deported passengers, insane, etc., is a series of documents in duplicate, lettered A, B, and C, which forms a sort of modern Habeas Corpus Act (*vide* Appendix VIII.). Schedule A contains particulars of final destination, name, personal effects, etc., and official receipt of the passenger by the ship. Schedule B is a medical record of the case, which has to be kept by the surgeon during the voyage, and must be countersigned by the master. It constitutes also a receipt from the person who takes charge of the patient from the ship. This is generally the agent. The remaining schedule, C, is the receipt of relatives to the person designated by the company to convey the patient to the destination prescribed by the immigration authorities.

These documents, when duly filled up, are returned to the Department of Immigration in America by the steamship company. Thus the department can trace the travels of a deported alien from the time he leaves their charge until his arrival at his ultimate destination.

With some of these schedule cases the surgeon may be in doubt as to their severity or seriousness, as stated in the papers; but he will be well advised to act in accordance with official documents, and not to trouble himself with challenging the diagnosis of the American

medical authorities. If he departs from it, he will find himself in an awkward position should any untoward event happen, such as suicide or injury to others by the patient.

In connection with this subject, a peculiar incident occurred. A married woman was ordered to be deported as insane. On her arrival on board she was accompanied by an infant, six months old, American born, and her husband was a naturalized citizen. No mention whatever was made on the schedule about the infant being deported with her. As she was still nursing the infant, and was apparently very fond of it, it was decided to allow her to bring it with her. The case, however, presented certain peculiarities as to the legality of deportation of the infant, which might subsequently be called into question.

Vaccination of Aliens.—All alien third-class passengers must be vaccinated prior to entering the country. This is done either before embarking or during the voyage, and the vaccination portion of the inspection card stamped accordingly. One mark is usually considered sufficient, and should be made irrespective of past marks, unless, of course, there are signs to show that vaccination has been recently and satisfactorily performed.

In the event of a 'conscientious objector' presenting himself, the card should be endorsed '*Refused.*' One cannot delay a whole crowd of passengers in order to argue the point with a recalcitrant, except, of course, in the case of smallpox actually existing on board. Even then there is always the question of a technical assault to be thought of, in the event of a person being compulsorily vaccinated, in compliance with American law. In these cases the best method would be to rigidly segregate objectors, telling them of the possible

restriction of their liberty consequent upon non-compliance, and hand them over to the quarantine authorities on arrival, to deal with as they think fit.

On arrival at quarantine in New York, the numbers vaccinated during the passage must be certified on a special slip by the surgeon (*vide* Appendix VIII.).

Ship vaccination may be described as consisting of two varieties—the 'official' and the prophylactic. In instances of the latter, if there is any reason to think that patients will rub the lymph off, hypodermic injection of same should be resorted to. While being in a measure a somewhat barbarous proceeding, yet with the crassly ignorant or stupid it is quite justifiable where the safety of the whole community is in jeopardy.

The following extract from the Quarantine Laws and Regulations with regard to Smallpox (revised edition, November 13, 1899) puts the case very clearly :

' Par. 4. On all vessels arriving, all passengers occupying apartments other than first or second cabin shall be vaccinated prior to entry, unless they can show that they have had smallpox or have been recently successfully vaccinated, or be detained in quarantine fourteen days.'

Incidentally, detention in these instances would be at the expense of the passenger, and not the steamship company.

Quarantine.—As yet the quarantine service of the United States is not the same at all ports. There are two distinct services—the Federal and the State. While State quarantines are to a certain extent autonomous, they are, however, all subject to a minimum schedule of quarantine restrictions, fixed by the Federal Government, represented by the Public and Marine-Hospital Service. In other words, each State still

maintaining its own quarantine service is allowed to draw up its own regulations for this, provided that such do not fall below a minimum standard set by the Federal authorities. In these instances each State has a special quarantine form to be signed by the master and the surgeon of an incoming ship (*vide* Appendix VIII.).

The ports at which there is a State quarantine service are New York, Boston, Philadelphia, Galveston, and Baltimore. On the Pacific coast the quarantines are all Federal.

The following excerpts from Article II. of the regulations will explain themselves :

‘ Par. 1. For the purpose of these regulations, the quarantinable diseases are cholera (cholerine), yellow fever, smallpox, typhus [not typhoid] fever, leprosy, and plague.

‘ Par. 2. Vessels arriving under the following conditions shall be placed in quarantine :

‘ (a) With quarantinable disease on board.

‘ (b) Having had such on board during the voyage, or within thirty days next preceding arrival ; or, if arriving in the quarantine season, having had yellow fever on board after March 1 of the current year, unless satisfactorily disinfected thereafter.

‘ (c) From ports infected with cholera, or where typhus fever prevails in epidemic form, coming directly or via another foreign port, or via United States ports, unless they have complied with the United States quarantine regulations for foreign ports ; also vessels from non-infected ports, but bringing persons or cargo from places infected with cholera, yellow fever, or where typhus fever prevails in epidemic form, except as subsequently noted.

‘ (d) From ports where yellow fever prevails, unless disinfected in accordance with these regulations, and not less than five days have elapsed since such disinfection.

‘ Par. 3. When a vessel arrives having had smallpox on board, all persons must submit to vaccination, or

show satisfactory evidence of recent vaccination, or of having had smallpox, or be detained in quarantine for not less than fourteen days.'

The foregoing are Federal regulations, applicable to every quarantine station, whether State or Federal. In addition, the former may impose further restrictions, which may vary from time to time according to circumstances.

Registration of Diploma.—It is necessary that surgeons engaged on the New York service should register their degrees or diplomas on their first visit to the port, as the municipality requires a certificate of all deaths occurring on the high seas to be made out on a special form supplied by them.

The 'parchment' itself or the certificate of registration issued in the United Kingdom should be presented to the registrar at the Board of Health in New York, when the surgeon will be registered there, and a book of death-certificate forms given to him. It may be mentioned that this registration does not entitle the holder to practise in the city. It simply avoids the necessity of holding a coroner's inquest in the event of a death occurring in port. Change of ship should also be notified to the same official.

The simplest way of giving the reader some idea of a surgeon's duty will be to outline the voyage from the time of departure in England to that of arrival in America. The return passage presents little of import over and above the usual ship routine and the care of insane or other passengers deported for medical reasons.

Examination of Passengers prior to Sailing.—The American law requires that all intending immigrants must present themselves before the American Consular officer at the port of departure, and have their inspec-

tion cards endorsed. In addition, at some ports, especially Italian, they are inspected by a medical officer attached to the Public and Marine-Hospital Service. All of this, however, is not within the ship-surgeon's sphere, as such passing by the American medical officer carries no onus of responsibility with it. Therefore, on the day prior to sailing all third-class passengers already in the port, and who are generally lodged in some officially designated building pending departure, must be examined by the ship's surgeon. In Liverpool he will have the assistance of a medical officer employed by the company. The inspection cards of all 'held over for treatment' for a week or definitely rejected are taken charge of by the company's shore medical officer. Those passed should have their cards stamped or marked in a suitable manner, showing they have already been seen. (Incidentally, it may be mentioned that if at any time or place the surgeon has reason to suspect the possible substitution of rejected passengers previously examined—such has been known—he should stamp the wrist or hand of all he passes, in addition to the cards, issuing instructions that no passenger is to be allowed on board unless so marked. Even then signature stamps have been forged. The practice of adopting different coloured inks for the pad is also liable to be subverted.)

Embarkation.—On sailing-day the balance of third-class passengers, consisting of those who have arrived that morning, must be examined. This examination is made conjointly with the Board of Trade Medical Inspector. The latter, however, is only concerned in so far as Part III. of the Merchant Shipping Acts demands, and has nothing whatever to do with the rejection of those medically 'undesirable' from an American point

of view. This matter is entirely in the hands of the ship-surgeon himself, and he alone is responsible (*vide* p. 136).

In examining a stream of people, all eager to get on board with as little delay as possible, it is quite easy for a surgeon to miss something or other, which should either be manifested or rejected. During his early experiences, afflicted with what, for want of a better term, may be called 'trachomophobia,' he has visions of nothing but red, suffused, and granulomatous eyelids. Everything else is a blank beyond the possibility of a \$100 fine, frequently and fervently impressed upon him by the office staff, unvexed by having such a matter to decide upon. (It is a moot point, too, as to how many medical men, besides ophthalmic practitioners and the like, can be positive as to the appearance of even a normal conjunctival mucous membrane.)

The author's plan is to station the hospital steward (one of these is carried in all North Atlantic ships) some two or three yards in front of him, with injunctions to look out for and call attention to any deformity, etc., and also to remove passengers' hats for inspection of scalp (favus).

From the steward the passengers pass on to the surgeon, one by one, for an examination of the eyes for trachoma. All children except infants-in-arms should be made to walk past the surgeon, for reasons already mentioned in Chapter IX. (*vide* p. 136). The surgeon should station himself so that passengers are examined in a good light—natural, if possible. Any crowding on their part must be instantly checked; otherwise it is quite impossible to do satisfactory work.

In inspecting an embarking stream of passengers, the surgeon should acquire the habit of looking at them

from the feet upwards as they are advancing towards him after passing the hospital steward. By this means defects of gait, limbs, etc., are more likely to be noticed, and by the time the passenger arrives where the surgeon is the latter has concluded the rough survey of everything but the face and eyes, which are next examined.

When a case is noticed at the gangway inspection which ought to be manifested, although not necessarily rejected, all that is required is to note the numbers on the inspection card. These should be written on a memo-block, and the next case examined. Later on in the voyage the passenger can easily be identified, and further examined at leisure. If a steward can be obtained to act as clerk, much time will be saved. He should take his stand close to the surgeon, making notes from dictation as the passenger passes. To prevent substitution or the possibility of a mistake through mixing of cards by passengers in the rush of embarkation, a few rough details should be added to the numbers, the slip when all is over reading : ' Q. 20, / 12, M. (F. or C.), Rt. Eye Conj.,' etc., which, being translated, means that on Sheet 20, line 12, of the Queenstown passenger manifest will be found details of a male (female or child) suffering from conjunctivitis of the right eye, or whatever else may have been noticed.

Opinions differ as to the best method of everting the upper eyelid. Flicking it up between the thumb and index-finger is certainly the quickest, once dexterity has been attained. It is, however, subject to the drawback that nothing beyond the edge of the tarsal plate is visible. The lining membrane of the sulcus above it, which often contains suspicious, if not actual, trachomatous nodules, is not exposed (*vide* p. 249).

Various instruments may be used for turning up the

lid—hairpins, small spatulæ, button-hooks, etc.—but in the author's opinion the best of all is a wire collar-stud or glove-button fastener bent to a suitable angle. With such an instrument the whole sulcus is exposed more or less painlessly and rapidly. These may be obtained at any American hosiery establishment, and are almost exclusively used by the medical officers of the Immigration Service. This in itself is a good argument in favour of their adoption.

When examining passengers' eyes, they should be directed to look the examiner straight in the face. If told to look down (the ideal position), they will invariably do so by inclining the whole head downwards, thus making it impossible for the surgeon to obtain hold of the upper eyelid, and wasting much time in consequence. As a polyglot assembly of passengers is sure to be met with on most services, surgeons would do well to acquire a stock of 'directive phrases' in each. The ship's interpreter will usually be able to supply such on demand.

When examining eyelids, the fingers and instrument should be rubbed over a towel or cloth soaked in 1 in 2,000 perchloride solution after every case. The towel should be fixed in a handy position close by, or simply slung over the shoulder. After a little time, the action of cleansing fingers and the instrument before everting the next lid becomes almost automatic and very rapid. Experts can examine eyes at the rate of nine or ten people a minute, or from 1,080 to 1,200 individual eyes per hour !

All those rejected must be put to one side in charge of a steward or somebody specially told off to look after them and to prevent them being mixed up again with the others who have been accepted. If time permits,

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they should be re-examined when the rush is over, as often a case which at first sight looks very suspicious, on closer scrutiny turns out to be eligible.

When any doubt as to eligibility occurs, the surgeon must remember that it is more economical for the steamship company if such case is 'held over' for observation for a week or so than if it is allowed to proceed and be subsequently detained or rejected on arrival in America at the expense of the company. In other words, no undue risk should be taken. Also, in embarking passengers it must be borne in mind that more haste means less speed and a greater possibility of being fined.

The tyro may feel disheartened at first owing to the slowness of his methods, and possibly allow himself to be 'rushed' in the general flurry which always accompanies the sailing of a steamer. He will soon find that precision and speed follow practice, and that anybody can pass an eager, surging crowd at the rate of unheard-of numbers per minute. He will also hear of that same person being fined more frequently than one whose motto is *Festina lente*. It is all very well for agents, passenger-clerks, and others to urge haste, etc., but it is the medico upon whom the brunt of any resulting trouble will fall. To do his work properly and efficiently is a duty he owes to his employers, himself, and his profession. Such cannot be the case if he allows himself to be 'rushed.'

Rejected Passengers.—Some time before the vessel sails the surgeon is called upon to make an affidavit as to the names and numbers of those rejected by him. This is done before a representative of the American Consular Service, who attends on board steamers in all large departure ports 'clearing' for the United States. The

American fashion of taking an oath is by means of the uplifted right hand.

Examination of Second - Class Passengers. — As yet second-class passengers are not subjected to the same rigid inspection of eyes as the third class. At the same time, however, they must all pass before the surgeon, and it is left to his discretion whether he everts the lids or not. As previously mentioned, cases occur where a person having been rejected as a third-class passenger will attempt to enter the country by travelling second. It is in these instances that the ship runs a great risk of carrying contraband, and the surgeon should exercise particular care. The eyes of all foreigners should be examined, because they, with the rest of the second class, must pass a medical inspection on arrival, and are equally liable to be returned as third class or immigrants (*vide* p. 223).

Examination of First-Class Passengers.—While first-class passengers pass the surgeon at the gangway, such examination is directed more to the detection of any condition liable to give rise to detention at quarantine on arrival than to the requirements of the Immigration Department. Nevertheless, the law stipulates that all aliens should be examined, and the surgeon must use his discretion. Should appearances warrant it, he must have no hesitation in making the necessary examination. This applies particularly to servants, valets, etc., who may be travelling in the saloon with their employers.

Vaccination at Sea.—Once away at sea, the next duty is the vaccination of passengers not previously vaccinated prior to sailing, and the detection of any cases requiring to be manifested which may have escaped observation on sailing-day. 'Vaccination day,' as it is usually called, is also made use of by the purser for final

checking of passengers with the manifest sheets. While in every respect a medical event, and under sole jurisdiction of the surgeon, he should arrange the day to suit the convenience of the purser and his staff of writers, as ship's clerks are called, as much as possible. Two or three days out, provided weather conditions are favourable, is generally the best.

All third-class passengers are mustered in one part of the ship, men separated from women and children, and are then formed up in single file. Two stewards are told off—the one to remove passengers' apparel, and the other to cleanse the arms. This should be done, not with an antiseptic solution, but with sterilized water and alcohol, or some form of ethereal soap. The surgeon then vaccinates (*vide* 'Hypodermic Vaccination,' p. 229). From him passengers are passed on to another steward, who puts on a dressing of *plain* lint and strapping. A fourth steward stamps the inspection card, and finally they are passed on to the purser's staff for checking (*vide* Appendix VIII.).

During the round-up a sharp look-out should again be kept for anything which may have been missed previously, and which requires to be manifested. A final muster should be made—indeed, according to law, it is compulsory in the State of New York—the day before arrival, and a sharp scrutiny made for rashes, general appearance of passengers, or anything else likely to give rise to suspicion at quarantine, and consequently delay the ship unnecessarily. A note of all cases of this nature should be kept, or, better still, they should be isolated in hospital.

Thirty Sheets.—The day before arrival in American waters the surgeon should fill up the special columns of the Thirty Sheets from the memos made during the

passage and on embarkation, signing each sheet personally in ink. Every case of pathological interest should be manifested. Failure to do so renders the ship liable to a fine of \$10 (£2) for each case. Omission to manifest a specially proscribed case is liable to the full penalty (£20). Moreover, manifesting the same does not remit the fine, except by reduction of \$10. An impression exists in shipping offices that manifesting a prohibited case saves the fine. This is quite erroneous. Fines are imposed, as previously stated, for missing obvious cases—in other words, for slackness.

Arrival at Quarantine.—On arrival at the quarantine station, the health officer comes off to the ship, takes a count of third-class passengers, removes any suspicious cases, inspects the hospitals, and, provided there is nothing to prevent him, gives the vessel a permit to proceed to her berth. This should be handed to the purser as soon as possible after reporting the vessel as 'cleared' to the commander.

For the quarantine officer in New York a special form must be filled up, and countersigned by the master prior to arrival (*vide* Appendix VIII.).

The purser's writer should give the surgeon a detailed list of passengers and number of the crew, dates of departure, etc. A full passenger-list is also wanted for the boarding health officer.

Immigration Inspection of Second-Class Passengers.—As the vessel is proceeding up to the wharf, or after she has been made fast there, another medical officer boards her. This official belongs to the Immigration Department, whereas the former belonged to the Port Sanitary Service, and his only duty lay in respect of the ship herself.

The immigration medical officer, one of the Public

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Health and Marine-Hospital Service, is concerned with the examination of second-class passengers and any aliens there may happen to be in the saloon. These are mustered, and file past him one by one. If satisfied with their general appearance, he punches a 'landing card' previously issued to each passenger, without the punching of which they cannot leave the ship. Officials are stationed at the gangways to prevent this.

If the examining surgeon is not satisfied with any passenger, the latter is set aside under supervision, and finally taken over to the immigration station with the third class for further examination, being detained there at the steamship company's expense until either released or deported.

To save delay at the inspection of second-class passengers, it is well to mark with a star or cross the landing card of each passenger who has been specifically mentioned in the Thirty Sheets. Thus, when they are mustered for the inspecting medical officer, his attention can be drawn to them by the surgeon. The former can then deal with them as he thinks fit, either passing or detaining them for further examination. If this is not done, some of these may escape his notice, and be referred back to him by the immigration officials checking the manifests, thereby causing unnecessary delay, and possibly confusion.

For the use of the inspecting surgeon towels and a basin of disinfectant solution should always be provided.

Voyage Report.—In addition to the quarantine certificate and passenger manifest, the surgeon is called upon to fill up yet another form, known as the 'Voyage Report' (*vide* Appendix VIII.), which contains details of births, deaths, sickness, or injury which may have occurred

in any part of the ship, irrespective of class, during the passage. Any cases removed at quarantine must also be reported on this form. This report is also held as a sworn document, and is countersigned by the boarding officer, and sent to the immigrant station.

In making out the voyage report, certain details, such as age, sex, manifest number, etc., are required. To facilitate the filling up of this form, a rough list of manifest numbers of all cases destined to figure thereon should be made when the patient first attends at the surgery, or at some time prior to arrival. From this list the final non-medical details can be obtained, without having to overhaul the Thirty Sheets at the eleventh hour.

Landing Third-Class Passengers.—First and second class passengers having been landed at the wharf, the third class, or immigrants, are next dealt with. They and their baggage, after search by Customs officers, are transferred to the immigration station, wherever that may be. The American law does not recognize a third-class passenger as landed until the routine of the immigration station has been gone through.

It is a rule that the ship-surgeon should accompany the passengers to the station, and be present at their examination, so as to be able to give any information which might, perhaps, be required.

In New York the immigration station is situated on Ellis Island, and passengers are transferred there direct from the ship in tenders or special barges, which are towed down.

Ellis Island.—Ellis Island itself is the practical working headquarters of the Immigration Service as carried out in New York. It contains a large central building for the reception and examination of immigrants. In the

vicinity are administrative offices, observation and ordinary sick quarters, detention wards for those awaiting friends. A restaurant, baggage-room, money-changing and railroad forwarding offices form part of the scheme.

The first-floor of the main reception building is divided into a series of compartments by steel and wire partitions, the whole presenting the appearance of a huge maze or cattle-drafting yard when looked at from the spectators' gallery running round the room. Down the centre are two narrow alleys, forming what is technically known as the 'line.'

Arriving on the ground-floor of the building, passengers are sent up a central stairway leading to the first-floor, and directed, one by one, into the 'line' by attendants. Halfway down each line a medical officer is stationed, whose duty consists in making lightning diagnoses of possible pathological conditions, indicating such by means of a code mark chalked on the clothes of the person in passing. At the end of the line, with his back to a good north light, another medical officer is stationed. His duty lies in everting the lids of each, and examining for the presence of trachoma.

All those with a chalk-mark are then passed into a separate compartment for further examination in a special anteroom. Here any pathological condition is thoroughly gone into by the medical staff detailed for this purpose. If indicated, the case is certified on a special slip, which has to be signed by three surgeons. The person is then detained pending the decision of the Admissory Board.

It might here be mentioned that the ultimate rejection of a person rests, not with the medical inspectors, but with an Admissory Board, composed of various

officials. The medical staff only act as medical advisers to this Board, and have practically no say in the admission or rejection of any immigrant who fails to come up to standard requirements as set forth by law.

Stationed at the end of the line is also a woman attendant, whose duty is to hold and question all pregnant females after they have passed the 'line.' The unmarried ones are liable to deportation except under special circumstances, such as coming out to marry.

After having passed the medical examiners, the passenger is transferred to the immigration inspectors for inquiry into matters of finance, etc., and, if satisfactory to them, is allowed to enter the country, being conveyed back to New York gratis in a special ferry-boat.

Space does not permit further details of this remarkable institution of methodical system and routine being given. To be properly appreciated, it must be seen. Two features alone stand out above the rest. One is the curse of the Tower of Babel, when almost every language and dialect of Europe is represented in the motley throng of candidates for admission. The other is the unfailing kindness and consideration shown by the entire staff to the stranger in a strange land, including also members of the sea-going medical fraternity whose duty takes them over there.

As a matter of interest, it might be stated the staff are capable of dealing with 5,000 immigrants per diem, working every day of the year, including Sundays, with the exception of certain public holidays. Visitors are allowed entrance to the gallery on application for permit at the Barge Office.

A recently established regulation requires the presence

of the ship-surgeon at the island the day after arrival, for the purpose of obtaining details of any passengers held over for observation, or who have been rejected. Interest to this is given by keeping a list of all cases manifested, and comparing it with those certified or detained at the instance of the medical examiners.

CHAPTER XIV

AMERICAN SERVICE (*continued*)

Trachoma, Favus.

Trachoma.—No description of the American Immigration Service, however full, would be complete without something more than a casual reference to trachoma. A bugbear of the deepest dye to ship-surgeons in particular, and to steamship owners engaged in the trade in general, the question may not unnaturally be asked, What is trachoma?

The ophthalmic authorities of the world are themselves undecided as to its exact entity, pathology, and treatment. To some a more or less chronic fine granular state of the conjunctival mucosa represents trachoma. Others flatly deny this, describing a totally different condition. Comparison of standard textbooks leaves the reader in still greater quandary.

There is, however, a distinct pathological condition of the eye and adjacent tissues which has been decided by the American authorities to be trachoma. With the appearance of this particular condition the surgeon must make himself familiar, look for it in all cases, and reject it when discovered.

While not having the requisite knowledge to write a monograph on trachoma, the author is nevertheless

bound to go into considerable detail for the purpose of accomplishing the object of this chapter. Most of its contents have been culled from a booklet entitled, 'Trachoma: its Character and Effects,' written by Passed Assistant-Surgeon T. Clark and Passed Assistant-Surgeon J. W. Schereschewsky, of the Public Health and Marine-Hospital Service of the United States, and which is published officially by direction of the Surgeon-General. Surgeons are advised to read this book for themselves, and the author takes this opportunity of expressing his indebtedness for the use of information contained therein.

Unfortunately, much confusion has arisen in connection with the nomenclature applied to trachoma. It is this, perhaps, more than anything else which has led to such varied conception of its exact character.

The medical authorities of the United States Immigration Service have recognized the fact that trachoma is endemic in certain regions, highly contagious in certain stages—hence liable to become epidemic—and, finally, far-reaching in its ultimate effects upon the population. These factors explain the establishment of rigorous measures for its exclusion adopted by the department.

Clinically, or perhaps 'nautically,' it is met with in many phases—acute, subacute, and chronic; active and passive; recent and healed, any of these terms being equally applicable, according to fancy. For the purpose of uniformity, the words 'acute,' 'subacute,' and 'chronic' will be used in the description of the various stages.

Trachoma may be defined as a specific contagious disease of the conjunctival mucosa. Unless arrested by remedial measures, it is progressive in nature from without inwards—from superficial to deep structures. It is liable to vagaries in progression, according to hygienic

and other modifying circumstances, and ultimately tends to the involvement of neighbouring tissues, with resulting cicatrization of parts. Its sequelæ and complications may range from a mild pannus through varying stages to total loss of vision.

Etiology.—Essentially a ‘disease of dirt,’ originally confined to the Orient, it has spread by direct extension to Europe. It is rampant among the lower orders in Russia, East Prussia, Austria, Hungary, Holland, Italy, and Greece. It is also prevalent in Finland. England and Scotland are comparatively free from it, only sporadic cases, mostly of foreign origin, being met with. On the other hand, it is very prevalent in Ireland. It is also rare in France, while not uncommonly found in Spain and Portugal and their dependencies.

It affects individuals of all ages, with the exception of infants and very young children. This immunity of the very young is ascribed to the undeveloped state of their lymphoid tissues. It is disseminated wherever any condition of overcrowding and restricted hygienic surroundings obtain, such as slums, factories, the steerages of ships, etc. The exact method of dissemination has not yet been determined, although the causative factor is undoubtedly the secretion of an active trachomatous eye, which may be transmitted by direct contact, such as towels, etc., or remain adherent to the walls and fittings of any enclosed space.

The morbid anatomy calls for no further description here beyond the statement that the disease spreads by direct continuity, and readers are referred to handbooks for further details.

Instead of giving a progressive differential diagnostic description, apt to confuse through excess of detail, an attempt will be made to draw an outline of the one

condition only. In this fashion the main features stand out more prominently than if a description interlarded with details of kindred disorders is given. Following on this, a few hints on the differential diagnosis of various stages can be mentioned from the important point of the ship-surgeon.

Acute Stage.—The acute stage, or stage of infection, is characterized by local hyperæmia, puffiness of the lid, lachrymation, and a general state of local congestion, including photophobia, with a sensation of irritation of the eyelid very difficult to differentiate from a simple acute conjunctivitis.

On examining the patient closely, however, it will be seen that the ocular conjunctival membrane is only slightly congested, having a delicate pinkish tinge, due to engorgement of the scleral vessels, which is not unlike raw beef in appearance. This is especially marked in the superior and inferior culs-de-sac, which are congested, having a distinct tendency to redundancy. Another feature is the absence of any vessels in the mucous membrane of the lid; they are entirely obliterated. A further characteristic is the presence of a little darkened area at the upper and inner canthus of the lid. The coloration of this is decidedly stronger towards the middle line, shading off towards the periphery of the lid. The patch itself has a peculiar ground-glass appearance, caused by minute granules barely distinguishable one from another. These are the commencing trachoma follicles, and are more meaty-looking than the surrounding hyperæmia.

There is always a discharge—the secretion of the membrane—which is mostly watery, but may be mucopurulent at times.

Subacute Stage.—As the disease develops, the initial

subjective symptoms disappear to such an extent that the patient may be unaware of his complaint until attention is drawn to it by rejection on examination.

In this stage the granulations have increased in size, and developed into the characteristic trachoma follicles. They are most marked in the retrotarsal fold and along the edge of the tarsal cartilage. They tend to collect in groups, which finally coalesce, forming what is known as the 'frog-spawn appearance.' The arrangement of the follicles is more or less linear, the disease spreading by direct invasion of the neighbouring parts.

The mucous membrane of the eyelid may either be somewhat anæmic or it may have acquired a look of chronic red-rawness and density, unless the disorder is temporarily in abeyance.

The sulci are still somewhat redundant, presenting a roughened appearance.

The discharge has ceased by this time, unless there are any foci of activity.

Running parallel to the length of the upper lid may be seen varying strips of bluish-white glistening fibres of cicatricial tissue. These mark the commencement of the chronic or final stage.

Side by side with these fibres may be active follicular foci, which as yet have not reached the cicatricial stage. There is also a tendency to obliteration of the retrotarsal fold through proliferation of tissue.

The tarsal cartilage by this time may have lost its sharply-defined edge, and the whole lid has acquired a tough, leathery feeling, which is characteristic to a trained observer. This is due also to proliferative changes.

In consequence of the foregoing, there may be a certain degree of ptosis, owing to the levator palpebræ being unable to support or raise the thickened lid. This

is known as the 'semilunar lid,' and is generally accompanied by a wrinkling of the forehead, which is said to be pathognomonic of old trachoma.

The subacute stage is very liable to vagaries of progression. The whole process may appear to be arrested and quiescent, yet it will light up again with renewed activity, given a suitable irritant cause, such as a smoky or dusty atmosphere, dirty and insanitary surroundings. It is also in this stage that doubts arise as to whether a person should be rejected or not (*vide infra*).

Chronic Stage.—The chronic stage, which is arrived at by a gradual evolution from the preceding one, may be considered as the stage of arrest through cicatrization; in other words, Nature's attempt at cure in the usual manner of limiting the pathogenic focus by suitable scar-tissue.

The whole lid is traversed by longitudinal bands of bluish-white scar-tissue, which mark the site of former trachoma follicles. In between these bands the mucous membrane is generally paler than normal, and somewhat roughened, having lost the glistening, reddish appearance of a healthy eyelid.

In the majority of cases by this time the whole lid will have taken on the characteristics previously enumerated—leathery feeling, loss of tarsal edge and retro-tarsal sulcus, and also some ptosis. The extent of these changes is indicative of, and dependent upon, the severity and duration of the disease. It must also be added that there are no subjective symptoms other than those caused by any possible coexisting complications.

Complications.—The complications and sequelæ need only be mentioned as having reference to the victim being one 'likely to become a public charge' in con-

sequence, and not as one actually suffering from a 'loathsome contagious disease.'

They include hypopyon, leading to perforation of the cornea in severe cases ; whereas in milder ones there may be pannus crassus or pannus tenuis, keratitis, staphyloma, entropion, iritis, etc.

A remote effect is a high degree of irregular astigmatism, which cannot be properly compensated by lenses, leading to a considerable diminution of vision. Keratitis, too, through corneal opacity, may also result in the foregoing, in some instances to as much as one-tenth of the normal vision.

Hence, trachoma has to be considered from two points of view—the one in which it is absolutely prohibited from entering the country, as being a 'loathsome contagious disease.' The second brings it within the range of possible subsequent deportation through the victim becoming a public charge.

Differential Diagnosis.—At the outset it must be stated that the ship-surgeon is denied the one great method of differential diagnosis open to the staff of the Marine-Hospital Service—watching the effect of treatment. A simple acute conjunctivitis will clear up under treatment within a week or two, leaving no traces whatever behind it ; whereas a commencing trachoma will be very little, if at all, affected by ordinary remedial measures. Further, the ship-surgeon as often as not sees his cases under most unfavourable conditions—poor light, cramped space, and the rush of embarkation, added to the fact that some passengers may have travelled continuously for two or three days in trains, etc., and be lacking sleep. The two latter factors not infrequently set up a temporary acute conjunctivitis.

A well-marked case of trachoma in the subacute or

chronic stage should offer no difficulty whatever in diagnosis to anyone familiar with it. There is, however, some uncertainty in the commencing acute stage, and in the quiescent or partially developed subacute one.

Acute Stage.—Early in the acute stage the conditions likely to be mistaken for it are: catarrhal, muco-purulent, or epidemic conjunctivitis. The main points *in favour of trachoma are*:

1. A complete and early congestion of the mucosa lining the superior and inferior culs-de-sac, with moderate congestion of the ocular membrane. In simple conjunctivitis the reverse might almost be said to obtain.

2. *Obliteration of the palpebral bloodvessels* and the presence of a darkened radiating patch on the upper lid at the inner canthus. If bloodvessels are visible in the inflamed mucosa, the condition is *not* trachoma, whatever else it may be.

3. A delicate pink tinging of the sclerotic, due to engorgement of the scleral vessels, particularly at the vertical equator and circumcorneal zone of the globus oculi.

Of course, any or all of these may be subsequently developed in an apparent case of simple acute conjunctivitis, if only it is seen early enough. Therefore all acute inflammation of the palpebral and ocular mucous membrane should be regarded as suspicious and detained for observation, unless circumstances and the history point very strongly to it being a non-trachomatous condition. It is by no means easy to state that an early acute conjunctivitis will or will not eventually turn out to be a case of trachoma. The condition is analogous to the possibilities presented by a soft chancre: time alone will tell.

The Subacute or Quiescent Stage is most likely to be confused with a follicular conjunctivitis of old standing, and, more rarely, with vernal catarrh and Parinaud's conjunctivitis. The points in favour of trachoma are :

1. A possible accentuated coloration of the conjunctival mucosa, due to engorgement of bloodvessels through chronic local irritation. This condition may, however, be absent if the disease is sufficiently quiescent at the time of examination. It must nevertheless be taken into consideration.

2. The presence of follicles in the retrotarsal fold and along the edge of the tarsal cartilage, with attempt in places at fusion of same into 'frog-spawn patches.'

In *follicular conjunctivitis* the follicles do *not* invade the fold, and have no tendency to fusion, each being separate and distinct from its neighbour. Moreover, they do not affect the vascular supply of the lid to any great extent, leaving it more or less normal in appearance. (N.B.—Surgeons should make themselves quite familiar with the appearance of a normal, healthy conjunctiva.) The follicles themselves are also more definite in size, colour, and appearance generally than trachomatous ones, although none of their characteristics can be adequately described by the various terms—sago-grain, millet-seed, grape-cluster, etc.—which have been applied to them. Their situation, too, is irregular, without any sign of linear extension.

Vernal catarrh and Parinaud's conjunctivitis are two conditions resembling some stages of subacute trachoma so closely that differential diagnosis is practically impossible under the circumstances obtaining at a 'gang-way inspection.' Hence doubtful cases are best held over or rejected.

The *Chronic Stage* of trachoma, once seen, is so abso-

lutely typical that a differential diagnosis is barely in question. Nevertheless, it is very necessary to differentiate between a trachomatous eye that is cured, and thus innocuous, and one which is in a passive stage, and liable to exacerbations under certain circumstances favourable to such.

It may be accepted as a golden rule that any case of trachoma presenting *follicles side by side with scar-tissue* must be regarded as *dangerous*, notwithstanding absence of secretion, symptoms of a subjective nature, and apparent quiescence of the disease, and should be rejected without hesitation.

A lid somewhat anæmic, covered with bands of scar-tissue, and in which the intervening mucosa is smooth and free from any localization of granulations, may be looked upon as cured, and therefore admitted on board. Due regard must nevertheless be paid to the possible co-existence of any of the sequelæ previously mentioned, and their significance in respect of the person being liable to become a public charge in consequence.

As the prognosis and treatment of trachoma do not come within the sphere of a ship-surgeon, they need not be entered into here. The 'simple remedial measures' previously referred to, and which may possibly be of use on board in the event of a sporadic case of doubtful nature occurring, consist of a lotion composed of boracic acid and sulphate of zinc (grs. vi. and ii. to the ounce respectively). This should be freely used, and the eye bandaged, or the case kept in a dark room. A 20 per cent. solution of argyrol or other organic silver compound of suitable strength may be used with equal results—satisfactory if it is *not* a case of trachoma, and more or less useless if it is.

It is needless to state that all acute inflammatory con-

ditions of the eye arising on board should be immediately isolated, manifested, and landed at the final destination with due precautions for others.

To recapitulate : When examining eyes, the following points should be looked into carefully :

1. External characteristics of the lid—ptosis—leathery feeling—wrinkling of forehead.
2. Presence or absence of secretion.
3. The state of the ocular and palpebral conjunctiva as to congestion.
4. The state of both culs-de-sac in respect of vascularity, redundancy, and granulations.
5. The condition of the tarsal plate—loss of edge—granulations and their distribution—scar-tissue—patch at inner canthus—presence or absence of blood-vessels.
6. The retrotarsal fold for granulations—raw-meaty colour and possible obliteration of the whole fold.
7. Colour of the sclerotic.

A factor to be guarded against when examining a whole crowd of eyes is the possibility of some 'undesirable' ones having been tampered with prior to the inspection. The usual agent for this purpose is adrenalin. The ischæmia following on its use may very easily mislead the surgeon by obscuring or modifying signs so much as to make him believe the disease is either non-existent or cured. Therefore, any very anæmic state of the parts should always be looked upon with grave suspicion, unless the general appearance of the person is in keeping with such. On closer examination in a good light, and at an angle to the lid, the follicles can generally be detected as minute nodules standing up above the mucosa.

The foregoing is but a very incomplete outline sketch

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of the disease, which it is hoped will relieve readers of some of the more depressing symptoms of 'trachomophobia' and 'rejectomania,' if such terms can be applied to the state of mind of a novice before and during his earlier voyages.

Favus.—Favus not being a condition commonly met with by the English practitioner outside special clinical departments, a few rough notes may serve to refresh his examination memory.

Favus may not inaptly be classed in the list of 'dirt diseases.' It is rarely found in England, although occasional cases may be encountered. It is very prevalent among the lower classes of human life in the Middle and Eastern European countries, including also the Mediterranean littoral.

It is due to a fungus, the *Achorion Schönleinii*, the mycelium and spores of which invade the epidermis and hair-follicles. The disease is directly contagious, and is usually found in the scalp, but lesions which have been spread by direct contact can be seen in other parts of the body. The contagion is conveyed, not only from man to man directly, but also through the medium of domestic animals—cats, dogs, etc.

At the outset it is not unlike the lesion caused by a tinea in appearance, but very soon a small bright yellow circular disc with a depressed central cup—the 'favus cup'—is seen. Through the centre of the cup the hair itself emerges.

When present in any quantity, the favus cups tend to coalesce, becoming coated with a thick serous yellow crust, giving off a distinct smell of mice, which is typical. By the effluxion of time the hair dies, and, becoming brittle, finally falls out, leaving a bald patch. Superimposed upon the specific condition, secondary infection

may easily take place. In fact, a contagious impetigo is by no means rarely seen associated with it.

Differential Diagnosis.—There are only two distinct points in the differential diagnosis of this condition :

1. The presence of yellow ‘favus cups,’ from each of which a dead hair can easily be extracted, provided it has not already fallen out.

2. The peculiar ‘mousy odour.’ This is absolutely typical. Any scalp showing unnatural thinning of hair should be closely inspected as to cause ; also those in which a large lock of hair is apparently casually brushed over to one side or the other. This is a favourite trick among affected passengers, hoping thereby to escape notice.

Treatment.—The treatment of this condition consists primarily in removing all the crusts and scales by means of hot applications, then epilation of the affected hairs, coupled with continual inunction of a parasiticide ointment. The ung. hydrarg. oxid. flav. is quite satisfactory for this, and figures on the official Board of Trade scale of drugs.

Cases should be isolated, or at least made to wear skull-caps all the time, if the lesions are only confined to the head. Old caps and other head-gear should be baked. Skull-caps can be made of linen or triangular bandages, and are to be thrown away when soiled.

CHAPTER XV

MEDICAL LOGS, ETC.

THE strict ethics of divulging professional details of their patients to third parties is a matter which concerns ship-surgeons most intimately. In addition to the usual relations as to secrecy existing between a practitioner and his patient, at sea there is the extraneous factor of a third party to be considered—*i.e.*, the ship-owner.

There are three separate aspects of the case, each of which has certain rights to recognition :

1. The patient.
2. The ship-owner.
3. The surgeon.

These, too, while being governed by the ordinary rules of everyday life, must also in a measure be subservient to local conditions obtaining on board a ship.

In most companies, as previously mentioned, a report containing medical details of work performed must be handed in to the office by the surgeon at the conclusion of each voyage. The ethical principle involved by such custom has always been a source of argument among ship-surgeons, and, to the best of the author's knowledge, no definite or authoritative ruling has ever been made on the subject.

With a view to arriving at some solution of a matter

so vitally important to sea-going practitioners, it is necessary to discuss the question from each of the three main standpoints.

Under ordinary circumstances, the patient's point of view may be dismissed at the outset as being the least complicated. It is a universally recognized principle that anybody consulting a medical man does so with the knowledge that he is entitled to, and will obtain, the privilege of professional secrecy. Were this not so, a physician's efforts to arrive at a satisfactory diagnosis of the case with a view to proper treatment would be stultified by the natural reticence of the patient in certain instances.

This rule applies equally to patients in private practice and those in public hospitals. No details of a medical nature concerning hospital patients are ever furnished to third parties outside institution precincts. In extraordinary circumstances the question of a 'privileged' medical report to a third party is naturally raised in courts of law to decide cases depending upon such for satisfactory settlement. Otherwise a medical man's lips are sealed.

From the ship-owner's point of view, three items must be recognized :

1. The presence of men in their ships who are incapable of doing the work they agree to perform on account of medical infirmity or a specific disease acquired independently of their duties. Under this heading must also be included accident reports in compensation claims.

2. From time immemorial all departments on board a ship have been required to furnish written evidence of the satisfactory performance of duties connected therewith during the voyage. The medical department has naturally fallen into line, and against the general principle no objection can be raised.

3. Some protection is due to the ship-owner in the case of complaint of inattention or unskilled attention on the part of his medical employees lodged by passengers or crew. Such complaints, it may be added, are by no means rare, or even well-founded in many instances, thus showing the necessity for some definite official record.

Under existing conditions of being called upon to furnish medical details of his patients, the position of the surgeon may be briefly stated as being ' 'twixt devil and deep sea.' It is only because few cases of any serious import have ever been brought into court of law that this matter has never been definitely taken up and settled by the profession. Ship-surgeons have in many instances allowed themselves to diverge from the strict ethical path, taking the risks of any subsequent action in consequence.

But the fact remains, nevertheless, and may arise at any moment. When it does, there can be no question as to the position of the surgeon in court. He will rarely be able to defend his action, and will run a great risk of being mulcted in damages ; whereas if he declines to furnish the medical details as required by various companies at present, his tenure of office may be of doubtful duration.

Like all other departments of a ship, the medical is also subservient to local conditions. These deserve a certain amount of recognition ; hence the department cannot be governed entirely by general professional principles. To make the position clear some mention of the ship conditions is necessary.

Briefly, it may be stated that a medical man occupies two separate and distinct positions on board :

1. As ' surgeon ' of the ship, he is placed on board by the owners in compliance with the law as a gratuitous

medical attendant for members of the crew and emigrant passengers. This includes also the duties of medical officer of health of the ship.

2. *Ex officio*—or, perhaps, better still, by virtue of his presence on board—he also fills the rôle of a general private practitioner for such others who may care to avail themselves of his services and presence.

As surgeon of the ship, he has his duty to his employers, who pay his salary ; to the Board of Trade, who require and sanction his appointment ; and, finally, to his patients in regard to professional secrecy. Therefore, where members of the crew and emigrant passengers are concerned, any call made upon his services, voluntarily or otherwise, must necessarily entitle the ship-owner to such details as he may require. It is without question that in this respect the ‘medical log’ would be considered as a privileged communication where members of the crew were concerned, and probably also in the case of emigrant passengers. In other words, any persons calling upon him as the surgeon of the ship, provided for that purpose by the owners, forego to some extent the right to that rigid secrecy as between patient and physician they would otherwise have.

As a ‘general practitioner’ who chances to be on board the ship, the position is slightly different, and depends upon whether his services are rendered gratuitously, according to the company’s regulations, or whether by the same regulations he is entitled to demand and retain a fee for such.

In the former instance it is a moot point if the steamship company, in supplying his services gratis to cabin passengers, is not entitled to some detailed record of such. In many instances this gratuitous attendance seems to be looked upon by passengers as

part of the equivalent return implied in their passage contract.

On the other hand, where surgeons are permitted to charge and retain fees for attendance on cabin passengers, such is surely more or less a tacit admission that the surgeon's services are not provided for them either by the company or the law. This, as previously mentioned, is the actual state of the case at present. Therefore in these instances professional secrecy must be rigidly observed, and passenger patients have every right to expect it. The ordinary relations between patient and practitioner which obtain elsewhere are at once established, and admit of no deviation from the general code.

There is one exception which may be taken to the above. This is in the case of disease notifiable under the Public Health Act, where the name and particulars of the patient must be divulged for reasons of public safety.

Finally, for his own protection, the surgeon should have some record of work performed which can be sent into the head office as proof of same in case of subsequent complaint or accident claim, etc.

Taking all the circumstances into consideration, the following scheme is put forward as a means to an end. It satisfies the requirements of all those interested without undue encroachment upon the rights of any particular one. Bearing the three essentials in mind—secrecy, right of ship-owner to written evidence of work performed by the surgeon, and the necessity of same for the surgeon's own protection—the written report sent into the office at the end of each voyage should be as follows: Only the name, rating or class of the patient, dates of first and last attendances, should figure. An extra column for any additional remarks, including

possibly the results of treatment which the surgeon may see fit to make, could be made ; no other details should be given. In other words, the report is but an index to the record of medical work performed, in case any necessity for future reference to it should arise.

For his own use and protection, the surgeon should keep a private and complete day-book, which is not sent to the office. A good plan is to enter the details of passengers on one side of the page and those of the crew on the other. All visits made and patients seen at the surgery should be entered in this book daily, no matter how slight or trivial the case may seem. If only an application for aperient medicine is made, such should be entered. The name, rating, symptoms, if necessary, diagnosis, and treatment of each case must be stated. When a case is cured or relieved, the fact is noted as ' Discharged ' in the daybook, and constitutes the date of ' Last attendance ' in the official report.

From this day-book the official report can be made up, either weekly or daily, as circumstances indicate.

Naturally full details of any serious case or accident should be kept either at the end of the day-book or in a special one kept for this purpose. When occasion arises this record can then be looked up and used for the drawing up of special reports or anything else the case calls for. For clinical interest, the author keeps a third book, in which are entered all details of unusual cases. A stock of temperature-charts should be kept for use with it.

To insure a complete record and keeping in touch with patients, they should be told to report as soon as their stock of medicine is finished. Members of the crew and steerage passengers in particular are very apt to ask for ' something to settle the stomach ' or ' cure a cough,' and, having obtained relief, will not take the trouble

to come back. This naturally militates against accuracy and utility of records. Where cases of this kind occur, the fact should be noted in the official report column of 'Last attendance' as 'Did not report.' It is a good plan to mark the date of issue on the label of each medicine-bottle; the case can then be looked up, and the mixture accurately repeated, if necessary.

Some may be found who think that this form of duplicate log is no check on the surgeon; but, as things are now, the existing official log-book or report of all companies requires a rough record for its proper foundation, and then contains nothing more or less than what the surgeon feels disposed to insert in it. There are no means whatever of checking the unconscientious worker beyond the Nemesis which is bound to overtake him sooner or later. Should this happen under the present circumstances, his existing record, if there is one, will, in all probability, be found equally useless.

It may be argued that the foregoing scheme is not in complete accord with the original discussion of the problem, in so far that the ship-owner is not furnished with medical details of the crew and emigrant passengers. This is perfectly true, but it may be added that the ship-owner is not in the least interested in the knowledge that 'John Jones, third-class passenger,' had a sore throat, which was relieved in the usual manner. All he requires to know is the fact that John Jones received medical attention from the ship's surgeon between such and such dates.

In case of further details being required, the surgeon can always—and, in fact, must—be referred to, as the form of medical log in common use is not much more than an index, containing one or two irrelevant and inadequate medical details. Therefore, the ship-owner

can well forego his claim to a privilege which means so little to him in the average run of cases, and is somewhat contrary to the ethics of general medical practice.

Where members of the crew are concerned the owner has an undoubted right to medical details; but here, again, in the average case he is not interested further than in knowing his employees are being medically looked after. Those medically unfit for service in the ship must be reported by the surgeon, and no exception can be taken to this by any medical man. Moreover, such report would undoubtedly be accepted as privileged. There are many analogous conditions in other forms of medical attendance provided by employers.

Venereal disease among the crew, however, opens up a wide field of controversy. If such is reported to the company, the victim in many instances is discharged on arrival back to home-port. In certain cases this is necessary for the benefit of all. At the same time, as soon as members of the crew discover, as they most assuredly will, that their names figure in the log-book, then they will never consult the surgeon at all for a complaint of this nature unless absolutely driven by force of circumstances. The result is that they tinker about or get into the hands of quacks, and are ultimately a source of loss to the company employing them.

The discharge or otherwise of cases of venereal disease should be left entirely in the hands of the ship-surgeon, who is better able to judge of local conditions. Unless warranted by circumstances perfectly understood by the men themselves, to discharge some cases and not others is manifestly unfair; while to discharge all victims of venereal disease indiscriminately is tantamount to stopping a ship for want of a crew, or perhaps depriving her of some of her best workers.

Venereal disease is a sociological factor deserving a more comprehensive and broader understanding by all than is usual in England. To look upon it as anything but a possible 'accident' of everyday life is little short of fatuous. In the case of seafarers such is preposterous, and only leads to disaster.

Only by fully acknowledging its existence can anything be done to remedy matters. There is no valid reason why a person should be more diffident about consulting a medical man for venereal disease than for any other of a contagious nature. Yet such is the case in many instances, and where men suffer in secret they constitute a danger, not only to themselves, but to the whole community.

It is upon the medical profession that the duty of combating the venereal evil lies in the first place, fighting it not only as a clinical entity, but also as a sociological problem of national importance. While not advocating unlimited licentiousness, it is surely no part of the medical man's sphere of influence to act as a sort of moral scourge to his patients. Rather let him be the true physician—guide, philosopher, and friend. The natural stigma of shame usually surrounding venereal victims is already sufficiently far-reaching in evil consequences as it is, without being added to by a false sentiment of mock hypocrisy.

In the case of steamship companies employing permanent medical superintendents the whole question of medical logs is apparently placed on a different footing. Ship-surgeons have not the same reluctance in furnishing medical details to a professional colleague as in giving such to a layman in a business office. The principle is the same, nevertheless.

Privacy of Cabin Passengers.—Another question affect-

ing the surgeon on a ship is the extent to which the personal privacy of a sick cabin passenger must be respected. As surgeon and medical officer of the ship, he has the right of entry into any cabin—first, second, or third class—if he has reason to believe the occupant is suffering from something dangerous to the community, and likely to detain the ship in quarantine. On the other hand, he has no more authority to intrude upon the privacy of a cabin passenger unasked than a medical man on shore has to enter a house containing a sick person without being sent for.

By judicious cross-examination of attendant stewards and stewardesses, some clue can generally be obtained, and surgeons should insist upon cabin attendants reporting to them all cases of sickness occurring among their passengers. In this manner surgeons are kept informed as to the existence of any illness on board. Whether they are subsequently called upon to see the passengers themselves is immaterial.

Even with this precaution, it is difficult at times to know exactly how to act. Passengers have their likes and dislikes in regard to medical attendants, similar to others elsewhere, and some come on board already prejudiced against ship-surgeons as a class, quite irrespective of the individual himself. The following is an excellent example illustrating a point of this nature likely to be met with almost at any time.

A passenger, victim of several previous attacks of appendicitis, kept to her bunk the whole passage on account of a self-diagnosed recurrence of the complaint. Despite several broad hints dropped to a relative travelling with her by the author, no call upon his professional services was made. The night prior to arrival a request was made by the relative for the use of a stretcher on

which to land the patient, whereupon the writer virtually insisted on seeing the case professionally. On physical examination, a large abdominal abscess was diagnosed, the condition of the patient being very grave. The case was sent straight to a hospital from the ship in an ambulance, and on arrival there, laparotomy was almost immediately performed. From a subsequent medical account of the operation, it had evidently been performed none too soon. The consequences of allowing a person in this state to be jolted about in a cab might have been serious. The position of a ship-surgeon who had permitted this would not have been enviable, to say the least ; and yet it is difficult to say what he could do.

Where passengers seem to fight shy of the ship's surgeon a compromise may be effected, in the event of another medical man being on board, by suggesting a consultation or joint examination. Failing this, circumstances must be the best guide, although surgeons should not take undue chances.

The position of passengers in this respect must also be taken into consideration. They have not the choice of medical attendants, and may not have any liking for, or confidence in the medico on board. If their complaint is trifling, then little harm is done by not calling in the surgeon ; but should this not be the case, then serious consequences may result through want of medical advice or attention. Hence ship-surgeons should not take professional offence if they are not called in, but offer sick passengers the opportunity of being seen by somebody else—always, however, in consultation. The reason for this is that the surgeon is almost certain to be called upon to furnish drugs, order special diet, etc., as the case may be, and his position on board entitles him to be a passive spectator, if not an active operator.

CHAPTER XVI

SHIP ETIQUETTE AND CUSTOMS

THE medico making his first voyage is at sea in every sense of the word—literally, metaphorically, and medically. He has left the world he has known behind him, and gone into another, whose boundaries are sharply defined by the length, breadth, and depth of the vessel, being distantly limited by the horizon where sea meets sky. He is suddenly brought face to face with new ideas, almost a new language, and a new type of the human race, which, however, is very human, nevertheless.

Decked out in brass-buttoned uniform, at first he may feel himself to be with, but not of, this new world; and unless his shipmates are of a cordial and receptive disposition—this is the rule in most instances—he will possibly feel a little lonely at the outset.

Here and there in the foregoing chapters various little hints vaguely suggestive of the existence of such a thing as ship etiquette have already been given. To emphasize them, bringing them together for easy reference, and thus saving the commission of unnecessary *faux pas* by the novice, must be accepted as the *raison d'être* for this divergence from matters strictly medical. No attempt at classification has been made other than the index, and in the Appendix will be found a glossary of nautical terms likely to be met with by surgeons, etc.

One of the first things to strike the tyro at sea is the sudden limitation of all the large affairs of this world, and an equally sudden magnification of the smaller and less important ones. Molehills on land very soon attain to the dimensions of mountains at sea, where there is no getting away from them. Like the poor, they are always with us, whereas the mountains themselves either remain as they are, or diminish in size through lack of relative comparison with others.

Unless a ship is fitted with wireless telegraphy, from the time the pilot is dropped outwards until another is picked up on entering port, she is cut off from the world, and is practically alone on the face of the waters—independent, yet self-dependent. While being an integral portion of the country whose flag she flies, the laws of the land affect her not, or, at all events, only very slightly. She is a law unto herself, and life on board her goes on in accordance with the maritime tradition of accumulated ages.

From a sailor's standpoint the essentials to a comfortable and happy life at sea may be summed up in three phrases :

1. 'Look after Number One.'
2. 'Mind your own business and nobody else's, likewise allow no one to mind yours.'
3. 'Give and take plenty in reason.'

Monographs of almost interminable length might be written on each of these phrases without exhausting the subject, and yet leave much untouched upon ; therefore only a few explanatory lines will be given.

'Look after Number One.'—It is a generally accepted axiom of human existence that self-preservation is the first law of Nature, subject, of course, to the usual variations and divergencies. Every member of a ship's

company is carried for a certain purpose, which may be well or ill defined by the powers that be, embodied in the managers of the ship. Specific duties and responsibilities are allotted to each, and must be borne by the person selected for such. Just as, for example, the chief engineer is the head of the engine-room department, so is the surgeon head of the medical department, notwithstanding the fact that it may only consist of himself. He is the one and only medical practitioner officially recognized on board, and he must see to it that nobody else assumes that function, or anything appertaining to it.

‘**Mind your own Business.**’—Seafarers as a class are usually very prone and ready to resent the interference of those outside their own particular department. Therefore, in performing his duties on board the surgeon must take care to avoid interfering with those of anyone else, and likewise of allowing others to meddle with his. The whole essence of a successfully and happily ordered ship is of a strictly departmental character. Each of the three main departments—the deck, engine-room, and victualling—has an official head in the chief officer, chief engineer, and purser respectively. This complex organization is under the supreme control of the commander, who is held directly responsible by the owners and also the law.

The official position of the surgeon varies. In some companies he is included in the deck department, signing articles after the last junior executive officer. In others he is borne on the victualling staff pay-roll. As a matter of fact, no single department can properly claim him, seeing that his services are open to, and equally required by, all branches. In the eyes of the marine law, he is simply designated as surgeon of the ship.

While generally recognized as an officer, he has, however, no disciplinary control whatever over anybody, except in so far as medical orders may be concerned. If he wants anything special from any department, he should apply to the official head for it. He should not give independent instructions, as such, if carried out, tend to weaken discipline, and may unintentionally offend brother-officers, while, if disregarded, they only lead to trouble on all sides. Nevertheless, he is an officer of the ship, and entitled to proper deference and respect in consequence. Failing to obtain a point after referring to the proper head, he must lay his case before the commander, and abide by his decision until the conclusion of the voyage, when the matter can be taken to higher authorities, if indicated.

In sending verbal messages through a subordinate to an officer it is the custom to include the sender's compliments to the person addressed.

‘Give and Take.’—There are few people in this world independent of somebody or other, whether superior, equal, or inferior in standing. Similarly is this true of the sea; in fact, it might almost be considered more appropriate, as the opportunities of obtaining help from other sources after one has failed are necessarily limited. Therefore, as everyone on board is dependent upon the surgeon for some possible medical service other than of a strictly official nature, so is he in his turn dependent upon everybody else for future favours, mostly connected with his own personal comfort at sea.

Seafarers have an expression called ‘frigging,’ which denotes the gentle art of ‘pin-pricking’ or ‘tail-twisting.’ Such may consist in overdoing the strictly official side of ship routine, and, if carried to excess, makes things uncomfortable. An example of this is

sometimes seen in the continuous exchange of written official requests, with carbon copies of same kept for future reference, instead of the ordinary verbal message, etc.

The newly-joined medico is always looked upon as a land-lubber with complacent indifference by others on board until time and circumstance have put him to the test. The best advice for the novice is to 'give' as much as he is called upon to 'take,' but always in a quiet way. He should not go about with 'a chip on his shoulder,' but must endeavour to feel his feet slowly, waiting for the others to make the first move, and act accordingly. At the same time, he must remain firm where his official status on board is in any way likely to be interfered with, or his ignorance in matters maritime taken advantage of unduly.

In conclusion, it may be stated that the surgeon will always receive good and fair treatment from all on board provided he reciprocates it.

'Signing On.'—After a person has been appointed to a ship, the legal formality of 'signing on' the Articles has to be gone through. As far as the surgeon is concerned, there are two or three details connected with his medical qualifications to be observed (*vide* p. 5).

At the time and place appointed—either the shipping office or the ship herself—all hands are mustered. The Articles of Agreement are read over by the shipping master or his deputy. When this has been done, questions may be asked by anyone to whom the clauses are not clear, which are explained by the shipping master, and then each signs in his turn. Two copies of the Articles are signed—one which is kept for record in the event of the loss of the ship, the other being sent to sea in her. Discharge-books (*vide infra*) have to be

handed in to some official of the ship prior to signing on. This is usually the head of the department, who eventually delivers them into the purser's keeping.

When a seaman has once signed Articles, he is compelled to sail in the ship. Failing to do so renders him liable to prosecution by the master (acting for the owners), if he feels disposed, and the discharge-book is endorsed as having 'Failed to join.' A stipulated time by which all hands must be on board is always stated in the Articles. Incidentally, the Articles of Agreement are signed with the master, and not the owner.

Articles signed, a seaman is entitled to obtain an 'Advance Note' for one month's pay, or an 'Allotment Note' for half-pay to be paid to some person designated therein every month while the ship is away. In certain instances both advance and allotment are granted. The allotment can only be made to near relatives—parents, children, wife, brother, or sister.

In the eyes of the law every person employed on board a ship other than the master is a seaman within the meaning of the Act.

'Signing Off.'—In practically all instances the arrival of a ship back in England terminates the Articles of Agreement—*i.e.*, the term of employment. The law requires that a ship shall be paid off within forty-eight hours of arrival, not including Sundays and holidays.

If a seaman is desirous of leaving the port before the ship pays off, he can do so, and have his wages made payable to him at another shipping office, or at a post-office designated by him on applying to a Board of Trade official, who boards all incoming ships for this purpose. A form will have to be signed, which releases the seaman from attending at the official 'signing off,' and is equivalent to it.

Where the surgeon is concerned, he may be ordered to await the official 'signing off,' in case the shipping master has any inquiries to make regarding the medical affairs of the ship.

In the North Atlantic services it is customary for members of the crew to sign off and sign on again for the forthcoming voyage at the same time, as the stay of the ship in port is very short, usually a week, or even less.

Unless the master is willing, no seaman can voluntarily sign off before the completion of the voyage, except in the case of anyone who has only signed on for the passage. In these instances, a passage-worker is only entitled to his discharge when the vessel is on the point of leaving that particular port.

Account of Wages.—Before being discharged a seaman must be presented with an account of wages. This is a legal form, and must contain a proper debit and credit column, showing gross wages earned and net ones due after necessary deductions have been made.

Discharge-Book.—On discharge, a seaman must be given a certificate containing a report of conduct and ability during the voyage. After the first voyage, this takes the form of a book—'Continuous Certificate of Discharge'—issued by the Board of Trade. During the voyage the discharge-book is placed in custody of the master—usually represented by the purser—who is responsible for it, and at the termination of the voyage it is handed back to the owner, suitably endorsed, during the paying off. If a seaman deserts, the book is delivered to the British Consul or a shipping master at the first opportunity, to be returned to the Registrar-General of British Shipping. The fact of the desertion is then entered up in it. Application for its return must be

made by the owner to the Registrar-General. Similarly, if the book is lost, etc., application for its return, or a new duplicate copy, for which a fee of one shilling is payable, must be made to the same official.

Joining a Ship.—It is the custom when going on board a ship for the first time to inquire for the chief officer or officer-in-charge, who will introduce the novice to the commander and such of the other officers who may be on board. Having joined, the general custom is for the new-comer to wait for the others to visit him in his room before going to theirs. This, however, is a matter which is rarely adhered to in a hard-and-fast way, and is simply mentioned as being the correct one.

Visiting Ships.—When two ships of the same company meet in port, an interchange of visits may be made to 'opposite numbers' or not, according to individual inclinations. If this is done, it is the place of the junior to call on the senior in the service. Here, again, the rule is not always strictly observed, the last ship out from home being generally visited in search for the latest news.

With reference to ships of other lines, visiting is purely optional, and depends entirely upon the person himself, also whether he knows anyone on board or not. As a rule, promiscuous ship-visiting is best left alone, unless, of course, there is any special object in view, such as looking over the ship, etc.

Uniform.—Officers should always appear smartly dressed in uniform when on deck or in other public places. If entering port in the early hours of the morning, the surgeon should always meet the boarding health officials properly attired. It is not only a mark of self-respect, but also one of courtesy to the visitor. Nothing looks so slovenly as to see a surgeon at the gang-

way enveloped in a watch-coat, collar turned up at the ears, pyjama trousers showing underneath, twenty-four hours' growth of hair on the face, and rubbing sleep out of his eyes while transacting official business.

Three suits of uniform are worn in most large passenger ships—double-breasted undress reefer, frock-coat uniform, and mess uniform. Ordinary patrol jackets are regulation undress uniform in some companies. In addition to the above, white patrol tunics, with or without 'rank' shoulder-straps, white trousers, and white canvas shoes or boots, are worn during the hot weather, the cap being fitted with a white washable drill cover.

The reefer undress uniform is worn ordinarily. The frock-coat is donned, weather permitting, on sailing-day, entering port on arrival, and at certain intermediate ports of call. It is also worn at church and Sunday muster (*q.v.*), and for official ship functions, receptions, funerals, etc. Brown leather or dogskin gloves are usually worn with it, unless others of a specific nature are called for by the company's uniform regulations. Regulation boots have no toecaps, but these, however, are not generally worn. Mess uniform, as its name indicates, is worn for dinner in the evenings, and after this event may be exchanged for a reefer or not, according to individual custom and inclination. The orthodox footwear for this is a half-Wellington patent-leather boot, although ordinary Court shoes are customarily worn.

When the uniform is to be changed, an order to this effect is issued by the commander or chief officer, through a quartermaster, to each one affected by it. This is technically termed the 'rig of the day,' and should be issued before 8 a.m., when changing from 'blues' into 'whites,' or *vice versa*. No individual divergence from the 'rig of the day' is allowed, with the

one exception that while white uniforms are being worn during the day, it is quite in order to change into blue after sundown, if desired.

A blue patrol jacket is very useful for the surgeon in the event of night-calls, as it can be slipped on over pyjamas, and the call responded to without much delay.

Precedence on Board.—Without any too rigid adherence thereto, the naval rules as to precedence of officers usually obtain in the mercantile marine. Precedence is always reckoned on the number of grade-stripes; the higher the rank, the more stripes will be worn. A non-executive officer—*i.e.*, anyone other than a navigating or deck officer—always ranks with, but after, one of the executive branch of the same grade.

Where the precedence of two wearers of apparent equal grade in the eyes of the company, as shown by the number of stripes worn, is in question, the matter is hardly worth considering, if any unpleasantness is involved thereby. The point is often raised in relation to the purser and surgeon, both of whom generally wear the same number of stripes, with one of a differentiating colour—red for the surgeon and white for the purser. As far as the author is concerned, he is absolutely indifferent, although it may be mentioned that the surgeon is mentioned by profession in the Merchant Shipping Act, whereas as yet there is no similar recognition of a purser.

Nine times out of ten the matter of precedence will never be raised, but some people may be found who are a little punctilious on this point, and disagreement will ensue.

Sailing-Day—‘ Clearance.’—In ships coming under the class of ‘ emigrant vessels,’ the Board of Trade enforces

an inspection on the day of sailing before giving 'Clearance Papers.' The inspection is made by emigration officials appointed by the Board of Trade, and includes an emigration medical officer.

Accommodation set aside for emigrants, life-saving appliances, medical stores, etc., are surveyed to see that they come up to the legal requirements. Members of the crew are also inspected and officially passed. Any person appearing ill or not satisfying the medical officer on the score of physical health is not allowed to sail. The crew are usually mustered on deck, and file past the inspectors one by one, answering their names as they are called out from the Articles by the purser or whoever is deputed for this duty.

Subsequently the emigrants are officially inspected and passed, those appearing ill being rejected if the emigration officials consider it desirable.

In connection with emigrants, it may be stated that the ship-surgeon receives an official, though honorary, appointment as 'Surgeon-in-Charge of Emigrants.' A form is handed to him, which must be filled up and returned to the Board of Trade at the end of the voyage (*vide* Appendix).

Bills of Health.—Bills of Health are documents certifying as to the general state of the public health at the port of departure made out by the local sanitary officials. One is required for each port of call, and is also obtained there on leaving. If the destination of a ship is a foreign port, the Consul of the country at the port of departure will also issue a special Bill of Health according to the law of that country, or will simply content himself with a *visé* or endorsement of the original.

By an international sanitary convention, all infectious or contagious disease existing in the port at the time of

departure and for some period previous to it, is specified on the Bill.

While these documents are essentially of a medical nature, for safe keeping they are usually deposited with the purser along with the rest of the ship's papers, and are handed over to the surgeon before arrival at the port they are intended for. Surgeons should always scan the Bills on departure, so as to be forearmed in the event of infectious or contagious disease breaking out during the voyage.

Bills for Portuguese ports must be endorsed by the commander and surgeon. Some Consuls require these officials to call at the Consulate, and sign in his presence.

Saluting.—Officers should take care to acknowledge and return every salute made to them by subordinate members of the crew. This should be done smartly, and not in a slipshod fashion, half raising the hand to the cap, as is often done.

In greeting ladies on board, the correct method is to salute, and not to make a semi-conscious attempt at raising the cap, as one would an ordinary hat.

If the surgeon conducts the daily inspection in the absence of the commander or other officer, he should see that the 'inspection' is duly saluted in the same manner as if the commander were holding it. Sometimes members of the crew will be found who do not accord it the usual respect under these circumstances, and will lounge about in a slovenly fashion unless checked. One intimation is usually quite sufficient for all hands.

Sunday Muster.—In most ships a muster of all hands is made on Sunday mornings, usually about 12 noon. The crew are lined up in their several departments according to local customs, and the commander makes a tour of inspection, attended by different officers in

different ships. The surgeon, however, accompanies him in nearly every case, as it is the one opportunity in the week he has of seeing all those under his medical charge. As the detail of this muster varies so much in different companies, nothing would be gained by further description.

Boat and Fire Drill.—Boat and fire drill is held once a week at sea, either conjointly with Sunday muster or on another occasion. Every member of the crew has a station allotted to him for this, and also a particular boat in case of need, and it is his duty to be present when the roll is called, unless officially exempted. Here again minute details are unnecessary.

Entertaining Guests.—Most companies allow officers to entertain guests to meals on board in port, although this should be done in moderation. As previously mentioned, this does not include official guests in connection with ship's business, who are entertained by and on her behalf. In some companies there is a fixed rate which officers are called upon to pay for each visitor entertained to a meal on board. This in a measure has a redeeming feature, in not necessarily limiting the number of guests a person may care to invite.

A guest in port should be introduced to all the officers present at the table, from the commander downwards, according to their rank. Whether they are subsequently invited to his cabin is a matter for the host to decide, according to circumstances.

The second steward should always be notified of the coming of guests, in order to lay seats for them. It is a matter of courtesy to inform the commander also of any expected guests, if circumstances permit.

Entertaining passengers has been discussed elsewhere (*vide* p. 57). Needless to add, ladies should never be

entertained alone, whether at sea or in port. In some companies there is a regulation to the effect that lady visitors are not allowed on board after 6 p.m., except in the case of official functions held by the commander.

Absence from the Ship while in Foreign Port.—Before leaving a ship in foreign port, the permission of the commander or officer-in-charge must be obtained. This is purely a matter of ship discipline, and should always be regarded as such (*vide* p. 44). If it is desired to sleep out of the ship, permission to do so must be obtained from the local marine superintendent or managing office, in addition to that of the Commander. In the case of the surgeon a suitable deputy must be arranged for.

The second steward, or other steward on duty, should be notified as early as possible if it is intended to be away from the ship for meals, as it saves cooking unnecessary food, and also allows the victualling staff some shore liberty, instead of keeping them on duty for nothing. A little consideration like this costs nothing, and is always appreciated on the part of those affected thereby.

Leave of absence should be asked for in uniform, and not after the applicant has donned civilian clothes and is on the point of leaving the ship.

Reporting Incidents.—All unusual incidents—births, deaths, fire, etc.—should be first reported to the officer of the watch on the bridge, and then to the commander as soon as possible, if such are not directly concerned with the navigation or other purely ship routine.

Any incident occurring between the surgeon and passengers likely to give rise to subsequent inquiry from the management should always be fully reported to the commander at the time of the occurrence. Of course,

medical details need not be divulged (*vide* p. 260). The commander will be the first to receive intimation of trouble, and will be called upon for an explanation; hence he should be kept posted.

Official correspondence between the office and the surgeon generally passes through the commander's hands on its way. That from the surgeon to the office is always read, and generally initialled or countersigned by the commander before despatch. Every voyage of a ship is designated by a consecutive number; therefore, when writing official letters, the number of the voyage the ship happens to be on should be stated in the heading. The number should also be quoted in referring to past voyages. Private correspondence to the office need not necessarily be laid before the commander, unless the writer is desirous of doing so.

?Intercourse? with Other Members of the Crew.—On board ship, as a rule, the departments are most clan-nish, keeping together and not intermingling much with members of other branches. As far as the surgeon is concerned, he is more or less of a free-lance, at liberty to form friendships wherever he likes. All familiarity with subordinates is, however, strictly to be avoided, although there are certain ratings with whom the rigid isolation of discipline may be somewhat relaxed without any loss of dignity. Among such may be instanced the chief and second stewards, the chef, the bar-keeper, barber, boatswain, carpenter, stewardesses, all more or less privileged persons, separate from the rank and file, with whom the surgeon will most likely come into contact at some time or another.

With the exception of the chief engineer, who will be met with on deck socially or not, as the case may be, and the second engineer officially, the surgeon will prob-

ably see very little of the other engineers, unless he goes directly to their quarters. With the purser he will have many official relations, which may lead to further social ones. In fact, it is essential that these two officers should pull well together ; otherwise the reputation of the ship for the comfort of the passengers may suffer. Executive officers he will see much or little of, according to local conditions. Officially he will meet some of them on gangway duty, where they are in full charge when the ship is in port.

A few suggestions on the subject of social intercourse with shipmates may not be out of place. Although purely personal and open to be questioned and criticized, they are the outcome of practical experience.

In some ships it is the custom for officers to go ashore together while in foreign ports, whereas in others each amuses himself in his own particular fashion. While there is no special objection to be urged against the former habit, it has one great drawback. After people have been confined together for any length of time in a ship, they sometimes mutually tire of one another, and require a change to prevent undue friction arising between them. If shipmates go ashore together, such a change is not obtained. Hence, speaking generally and very broadly, it is better to take advantage of the time spent in port to see fresh faces, etc., and thus prepare for the run home, than to carry on ship associations away from it.

Men will occasionally be met with who more or less ignore their shipmates while passengers are on board. As soon as the latter have left the ship, they will go round asking this or that officer to go 'on the beach' with them, as the saying is.

As mentioned at the outset, the whole of the fore-

going is only a matter of personal opinion, not of any very great import, and also liable to extreme variation. Experience has shown, however, that there is a certain logical argument in connection with it. Readers are advised to act according to their own inclinations after perusal, as no hard-and-fast statement can be made on a point of such a debatable nature.

noopee **Intercourse with Passengers.**—Enough has been mentioned in Chapter VI. to give a general idea on this subject, and the only thing to bear in mind is the fact that while passengers only come and go in the ship, officers remain for some time at least, and that they are the people a surgeon has to live with on board. Further, ship's business, or anything connected with her officers, should always be kept private, never being imparted to passengers.

'The Last Ship.'—A growl almost universal among sailormen is that 'the last ship' is always the best they have ever served in. Any remark of this nature will probably pass unchecked if made by a sailor, but when coming from such a landsman as the surgeon it may call forth a rebuke.

Every ship has good qualities as well as bad, and the rough must be taken with the smooth. If the latter more than balance the former, then a man should leave her, instead of remaining on board in a perpetual state of grumbling and growling. Nothing becomes so monotonous as to be cooped up in a ship with a continual grumbler.

The same remarks apply equally to passengers. They should, as a rule, be ignored, as it is not worth while attempting to argue the point with them.

Smoking.—It is against ship discipline and etiquette for a member of the crew to smoke on or in the imme-

diate vicinity of a gangway. If smoking while going on shore, pipe or cigarette, etc., should be removed from the mouth while descending the ladder or gangway. As a matter of fact, smoking is strictly prohibited in all dock premises ; hence a man should wait until he has left them before lighting up.

In some ships smoking on deck is only permitted on certain parts of it. These are usually situated at the after-end, so as to give non-smokers a chance of being on deck without encountering tobacco-smoke.

Smoking is never allowed in passenger quarters other than authorized places or in cabins, unless, perhaps, the latter are situated on deck, where the smell of smoke would not permeate a whole section.

There is a very stringent regulation against smoking in the vicinity of open hatches, owing to the danger of fire being started thereby.

Commanders may be met with who object to officers smoking even a cigarette on deck, to say nothing of a pipe. On this subject readers must be guided by local circumstances.

Needless to add, smoking at any time while on duty is strictly prohibited.

‘ **Weather and Lee Side.** ’—The weather-side of a ship is the one exposed to the prevailing wind, while the lee-side is the sheltered one—*i.e.*, the side which the wind is blowing away from. Anything to be thrown overboard must always be put over on the lee-side ; otherwise it will be blown back on board again, or possibly through a port into a cabin down below. This also applies to cigar and cigarette ends, through which a fire may easily be started in a cabin. ‘ Ends ’ should always be extinguished as a matter of precaution before being thrown overboard.

When escorting ladies up and down ladders leading from deck to deck, the lee-side should always be chosen, and also in this case the usual principle of 'ladies first' does not apply, unless there is absolutely no wind. The gentleman should precede the lady, acting as a sort of wind-shield. Strange as it may seem, members of the fair sex will invariably select the weather-ladder for this purpose, with disastrous results to their wearing apparel.

Entering Port.—In some ships it is the custom for the officer on the bridge to send a message to the surgeon notifying him of the coming of the port surgeon. In others he has to make his own arrangements, taking care to see that the visitor is not kept waiting.

When the vessel is 'cleared' medically, the surgeon must report this fact to the bridge at once, so that passengers can be landed without delay.

Customs Regulations.—As the Customs regulations of different nationalities vary so greatly, it is not within the scope of this article to give them in detail.

Every seaman arriving at a port in the United Kingdom is entitled to retain in his possession, duty free, a certain amount of tobacco and potable spirits. These quantities vary with the grade of the seaman. Before arrival, an official Customs sheet is sent round the ship, to which each member of the crew affixes his signature opposite the amount he has declared.

Anything over and above the regular prescribed quantity should be 'put under seal,' and the fact stated on the sheet, unless it is intended to pay duty and remove it from the ship. Bonded stores go under seal before the ship enters port, and remain there until she has sailed again. The time at which dutiable articles will be received for such a purpose in a large ship is generally notified to the crew.

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If a ship remains in port over a week, each member of the crew is entitled to obtain, duty free, a regulation quantity of tobacco and spirit every week until such time as the vessel sails again. The stores are issued under Customs supervision, and only on request of the ship. In most instances this request is made by hoisting a special Customs flag.

As the ship is entering dock, or after she has been berthed, Customs searchers will come on board, and examine her thoroughly for contraband. They are at liberty to ransack the whole ship ; soiled linen may be turned over, panels in cabins taken down, etc., if they feel inclined. This, however, must be done in the presence of the occupant of the room. Should he not be there at the time the searchers wish to examine the room, it is sealed up by them pending his arrival, and subsequently overhauled on his return.

When leaving a vessel in an English port, it is necessary to obtain a pass for personal effects, signed by an officer of the ship detailed for this duty. The pass has to be countersigned by a Customs officer before packages can leave the dock premises. It may or may not be necessary to have the packages opened and examined by the Customs before their signature is obtained. One of the reasons for the pass is to show that the packages contain only personal effects of a seaman, all of which are legally exempt from payment of dock dues.

There is a general clause in most ships' Articles to the effect that the fine imposed upon the vessel on account of any contraband discovered on board for which no owner is forthcoming shall be paid by the department as a whole in which it was found.

All persons on leaving a dock are liable to be searched

for dutiable articles before being allowed to pass through the gates.

So far only the United Kingdom has been dealt with in regard to Customs regulations. In the main, the foregoing applies to most Colonies and foreign countries, with the exception that, as the majority of these have an extensive tariff, their officials are on the lookout for other goods as well as tobacco and spirits.

When a vessel enters Australian Commonwealth waters, all stores consumed during her stay therein are subject to Commonwealth duty, quite regardless of the fact as to whether such have actually been consumed in port or on the local high seas, outside strictly territorial waters—*i.e.*, the international three-mile limit. Hence enough tobacco, etc., should be kept out, and the risk of being searched undertaken, unless a person is desirous of paying somewhat heavy duty on stores which may never actually be consumed in the country.

In France there is a heavy duty on matches of all description imported into the country, and a large fine is payable in the event of a person being caught with them. The same applies more or less to Italy.

Carriage of Letters and Parcels, etc.—It is against the postal regulations of most countries, and also those of steamship companies, for members of the ship's crew to carry letters and parcels from port to port. Under certain circumstances, they are allowed to convey small packages intended as presents for friends, on obtaining permission to do so from the management. Such parcels must be entered up in the ship's manifest of cargo or on a special 'presents' list made out for this purpose.

Birds, dogs, etc., are liable to have freight paid on

them, although probably no objection would be raised to anybody keeping a bird permanently in his room, provided others were not annoyed thereby. Dogs, however, are not permitted under any circumstances. Incidentally, if called upon to destroy a dog which has been smuggled on board, the best method is to fill a $\frac{1}{2}$ -ounce syringe with hydrocyanic acid, and inject it into the mouth. No trouble will be experienced by this way.

Firearms, cartridges, and wax matches are also prohibited. In most ships wooden matches are provided gratis for all on board. Spirit-lamps are not allowed, although this rule is more honoured in the breach as far as lady passengers are concerned.

Ocean Mail.—It is the right of every seaman on board a British ship to post letters to England or any other country or Colony within the penny postal system at the rate of one penny per $\frac{1}{2}$ ounce, provided such have been delivered to the master or some official designated by him to receive them before the ship enters a port. A bag of 'ocean mail' is made up and sent directly to England by the first available steamer. On arrival there, the bag is sorted, and letters forwarded to addresses. The fact of the bag having to go back to England should always be borne in mind if the destination of letters is other than that country. It may be quicker to post locally in many instances. Post-cards require a penny stamp for all parts.

Wine-Cards.—No cash sales of tobacco or spirits are effected to officers. All such articles required must be signed for on a wine-card at the time of ordering. Tobacco is bought duty-free at sea. In some companies a reduction on the price of spirits, wines, and minerals is made to officers, whereas in others they have to pay full

passenger prices. At the end of the voyage the wine-cards signed are added up, the total amount shown on the 'Account of Wages' sheet, and deducted from the gross sum due to the seaman.

Stationery of all descriptions is generally provided gratis by the ship.

Requisition for Stores during Voyage.—If it is found necessary to obtain special stores, drugs, etc., at an intermediate port of call, a requisition for such, stating the purpose for which they are required, should be handed to the purser, or perhaps the agent, who will take the matter in hand. Unless urgently required, drugs, etc., should not be purchased abroad, as in most instances the price is considerably in excess of the home one, and, in addition, the stores may not be as fresh as desirable.

Most accounts for items of this nature supplied to a ship are usually made out in triplicate, the surgeon being called upon to sign or initial each. At the end of the voyage the customary indent must be made out for the forthcoming one, and delivered to the official appointed by the company to deal with it.

'Man Overboard!'—On the alarm of 'Man overboard!' being raised, it is a moot point whether the surgeon should go away in the 'emergency boat' or remain on board in readiness to receive the patient. In the author's opinion, it is better that he should accompany the boat, so as to be able to perform artificial respiration or render 'first aid' if such be required.

Before leaving the ship, instructions should be given to have hot-water bottles and blankets prepared for the patient's return. It is a good plan to keep an emergency medical bag either in the chart-room or in each accident boat. The sail-maker can easily make

one of canvas. The contents of the bag should be as follows :

Brandy, \bar{z} iv. (carefully labelled 'Poison,' for the benefit of the curious).
 Spt. ammon. arom., \bar{z} iv.
 Plain water, \bar{z} iv.
 A thick 2 oz. measuring-glass.
 Rib-roller bandage.
 Medium bandage.
 Triangular bandage.
 Boracic lint.
 Cotton-wool.
 Scissors and safety-pins.
 Hypodermic case.

In connection with artificial respiration, the method advocated by the Royal Life-Saving Society is admirably adapted for use in a ship's boat. For details, readers are directed to obtain the pamphlet issued by the society.

Boats.—Although much small-boat work does not usually come in the way of the mercantile marine, there is a little point in connection with it which may be useful. When officers are going to or from their ship in a small boat, marine etiquette ordains that the senior officer present shall enter the boat last and leave it first on arrival at the destination.

In entering a boat a person should always endeavour to step right on to the bottom boards, and not on a thwart. Always remain seated in a boat under way.

Miscellaneous.—An old nautical custom gradually falling into disuse is for all members of the crew to 'salute the deck' when coming on board, likewise when going on the bridge.

Etiquette demands the word 'sir' to be used when addressing a superior officer. As far as the surgeon is

concerned, this only applies when addressing the commander. All commissioned and one or two non-commissioned ratings must be referred to, when spoken of, as ' Mr. ——.'

In conclusion, it may be stated that, while the general rules of naval etiquette obtain in the mercantile marine, their observance depends almost entirely upon the attitude of the commander of the ship. For some inscrutable reason, merchant-service Jack has a thorough distaste for anything approaching, not so much discipline as etiquette, regarding it as a form of ' putting on side ' and being unseamanlike.

This chapter has developed into one of great length, despite all efforts to keep it within bounds ; but, as already stated, the matter contained therein must serve as justification for its inclusion.

CHAPTER XVII

SHIPS AS CONVALESCENT INSTITUTIONS

SENDING a patient to sea for a voyage is not a matter to be lightly dealt with, unless there is every reason to believe that benefit will result. In all cases the patient is subjected to heavy expense, which in some instances can be ill afforded, entailing much economy on the part of all connected with him. The sending of unsuitable cases, or those beyond all hope of beneficial result, is much to be deplored, and does not redound to the credit of the profession. For the guidance of the non-sea-going reader, the writer proposes to mention briefly—it is impossible to lay down fixed rules—the main facts connected with the subject.

Primarily, it may be stated that the full benefit of a sea-trip is not, as a rule, apparent until the patient has left the ship and returned to his usual mode of living. There are many, it is true, who make visible progress on the road to health at sea, but the main effect is more slow and permanent in its establishment.

The following points are to be observed in connection with a health-seeking voyage :

1. Clothing and outfit.
2. Type of ship and cabin selected.
3. Duration of the voyage, length of time between ports of call, and the life led at sea.

4. Climatic and thermal changes likely to be encountered.

5. Type of case sent.

Outfit, etc.—Medical men sending patients for a voyage are sure to be consulted on the subject of necessary clothing. For outside wear, both summer and winter garments should be taken, as changes of temperature are experienced on nearly every run. The ordinary flannel suiting is almost the best for hot weather, as drill, in the first place, is not so cool as it looks, and, if white, very soon shows signs of wear, and must therefore be taken in considerable quantity. Khaki-coloured drill can be worn, if preferred. For cold weather, a medium-weight tweed is as good as anything.

Thin flannel or soft-fronted cellular shirts are the most comfortable for the daytime, and with them can be worn the soft double flannel or silk collar lately in vogue. As laundries are not yet generally fitted, even in the more modern mail-steamers, as in German ships, a larger stock of linen must be taken away than should really be necessary. A good estimate may be arrived at by providing the weekly amount multiplied by the number of weeks likely to be spent at sea before reaching the terminal port. To be on the safe side, an extra week's supply should be taken, as one cannot rely upon getting any washing done at intermediate ports. To economize space, underwear should be of medium weight and thickness, suitable for almost any climate. Additional warmth can be obtained in the cold weather by putting on two of each article, if required.

A close-fitting tweed cap is the most convenient form of head-gear for cold weather. One or two spare ones should be taken in the event of one being blown over-

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board. In warm latitudes a person is better without anything on the head at all if under cover. A solar topee is bulky to carry about, but should always be worn when ashore for the day in the tropics. As mentioned elsewhere, it is better bought locally (*vide* p. 10).

There are five items indispensable for the proper enjoyment and comfort of a sea-voyage: a warm travelling-rug; an overcoat; a cheap portable folding table; a deck-chair, with pillows; and a rubber hot-water bottle. The table is very useful for writing or playing cards on deck, etc., and can be lashed to the chair when leaving the ship. A plain deal one is best, and it need not be too expensive or elaborate.

As to the chair, even on such an apparently trivial and obvious subject there is much to be said. Some chairs are very comfortable, others are decidedly the reverse, and it is not until some time has been spent sitting in one that its qualities for comfort or discomfort are fully realized. The writer has a decided preference for the ordinary folding canvas-back chair. It should be fitted with arm-rests and a detachable foot-rest. To prevent accidents, there should be a central guard-piece, slotted to engage with the adjusting cross-bar. The chair should have a width of at least 24 inches—more for a stout person—as a narrow canvas one is apt to press uncomfortably where the body touches its framework.

On the other hand, there are some who prefer a square type of cane-chair, with side-pockets, foot-rest, and adjustable back, as it makes a very comfortable bed if the owner wishes to sleep on deck. The one objection is its size and liability to damage during transhipment, etc. Then there is what, for want of a proper name, may be termed the 'selfish chair.' It is made of cane and extends full length, allowing the occupant to lie

down perfectly flat. It takes up much deck-space, is a source of annoyance to other passengers, and also to the owner when moving about from place to place.

Pillows should be down-filled, and not 'kapok,' as the latter material soon gets hard and lumpy, being very uncomfortable after a little time in use. An air-pillow is almost the best, being compact and portable when not in use.

With regard to sleeping on deck in the hot weather, this, like everything else, has its drawbacks. One is short and broken rest, and a probable uncomfortable bed-place, because, as a rule, passengers are not allowed to turn in on deck before 11 p.m., when the lights are switched off. At 5 a.m. decks are generally washed down, compelling a change of camping-ground in the early hours of the morning. In some ships regular provision is made for passengers to sleep on deck. The stewards bring up mattresses at 11 p.m., and take them down again about 6.30 a.m. One side of the deck is reserved for ladies and the other for gentlemen.

The main objection, however, to sleeping on deck is the heavy dew almost invariably present in the atmosphere during the tropical night. On some occasions the decks are quite wet with it, even under shelter of a deck above. The risk to the patient of catching a chill under these conditions should always be remembered when consulted on this point. If passengers elect to sleep on deck, they should be told to wrap a rug or blanket right round the middle of the body, keeping it in place by means of a belt or strap. Then, however much they turn and twist during the night, the abdomen and loins are always covered. Old residents in the tropics will confirm this statement, which is one of the first things a new-comer is told on arrival there.

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Reading matter need not be extensively provided before leaving home, as at most colonial ports a paper-covered edition of the latest novel can usually be bought at half the cost. This edition appears almost simultaneously with the home one, and, incidentally, is not supposed to be imported into the United Kingdom. Ships' libraries vary greatly. In some they are kept up-to-date with recent novels, etc., whereas in others this is not the case, and only copies of standard authors will be found, such as Scott, Dickens, and Thackeray, which few care about reading at sea. For the homeward voyage—via the Red Sea especially, where there are many ports of call—private copies of newspapers, etc., are always very welcome. One of the best to send is the weekly colonial edition of the *Daily Graphic* or the *Times*.

If the patient be musical, and perform on any instrument, he should be advised to take it with him, as it will tend to relieve the monotony, and give him some occupation in playing at concerts, etc., for the amusement of himself and others on board. A valuable violin or other instrument of this nature is, however, better left at home, as the dampness of sea-air exerts a deleterious effect upon it, as a rule.

Photography is another mode of diversion not to be neglected. In some ships a dark-room is supplied for this purpose, and, if not, the latter-day 'tank-developing' may be employed, if desired.

Type of Ship and Cabin Selected.—As the ultimate success of a health-seeking voyage is so materially affected by all incidents and surroundings, the class of ship and cabin selected require much consideration before final settlement. This is especially so in the case of 'nervous complaints.' 'Nervous cases' should never

be sent away in a crowded ship. There are too many distractions and diversions for the patient to obtain complete rest and quiet. Dances, noise of deck-games, and children are all undesirable elements. The latter are generally present in full force during a busy season voyage. They invariably get in the way of everybody, particularly the invalid, and make life a burden to him. As yet very few ships have a place set aside for children beyond a nursery saloon or special sitting in the ordinary saloon for meals, and nothing short of actual sea-sickness will keep them quiet on board. Further, in a full ship there is always the 'inquisitive semi-sympathetic,' who will come up and discuss symptoms or tender fatuous advice, much to the patient's distress.

For an absolute 'rest-cure,' the Cape route to Australia by steamer or a sailing-ship is the best, because the 'slack voyage' through the Red Sea occurs during the monsoon, which will be discussed later on. This route has the advantage of putting the patient completely out of touch with the rest of the world. Latest telegrams, tape-prices, etc., cannot be received. Further, if Australia or New Zealand is the final destination, then, by travelling via the Cape, it is possible for the patient to receive letters on arriving out there. Cheerful home news always exerts a beneficial influence upon those exiled for health. If, however, a bright, lively time, with plenty of amusement, is indicated, then a popular mail-steamer should be chosen. The fuller and larger she is, the better.

With reference to that class of ship sent to sea almost all the year round as a yacht, the author cannot state anything very definitely. With but few exceptions, such do not belong to any of the leading steamship lines, and,

as a rule, are small compared with the modern passenger-ship. Moreover, judging from descriptive pamphlets, they are commissioned solely for pleasure cruises—*i.e.*, are in port a good deal, to allow of sight-seeing. Therefore, everything considered, they do not seem to possess ideal qualifications for invalids in general. Of course, in special cases they would probably prove more satisfactory than a ship engaged on a regular routine run. The main drawbacks to a sailing-ship are monotony, uncertainty of duration, and, by no means the least, lack of fresh food, tinned or preserved being naturally the staple. In addition to these, there are the minor ones of oil-lamps, no hot baths, etc.

Berthing.—In choosing a berth for an invalid the great essential is to reserve a whole cabin, if possible. Most companies will let a cabin to one person on payment of about 50 or 60 per cent. of the total berth value—*i.e.*, a three-berth room for one and a half or two full fares. The season will naturally affect the market rate. Single-berth cabins, as a rule, are small, and not at all adapted to the needs of a sick person, especially if there is any possibility of him being compelled to remain in bed at times.

The situation of the cabin is the next point to be considered. As all berthing plans are misleading to the uninitiated or inexperienced, it is not always easy to determine upon the right locality. If it can be managed, the ship should be visited before finally deciding upon any particular cabin. This should be done preferably when she is in dock. Even then, a ship in dock presents a totally different appearance from when she is in commission ; sea noises are suppressed, and traffic on board to and fro conspicuously absent. The points to consider are : position, privacy, light and ventilation, freedom

from noise (either overhead or outside, as caused by traffic), deck-games, hatchways, coal-bunkers, and pantries, etc.

As ships vary so much in the design of their internal accommodation, it would be invidious, not to say futile, to state here definitely where an invalid should be berthed. Therefore, with a view to giving the reader some idea of cabins in general, the advantages and disadvantages of various situations will be briefly mentioned, leaving the ultimate choice to him.

For a voyage to Australia or the Far East a cabin situated on the left or port side of the ship should be chosen. The reason for this is that the sun's rays, which heat up the ship's side considerably, do not strike it much after the middle of the day. Consequently, the room is cooler at night than one on the right or starboard side, which has had the sun on it for the greater part of the day. For the return voyage, naturally the order is reversed.

The advantages of an outside cabin over an inside one are daylight and a port which, under favourable circumstances of weather, can be kept open day and night, having, in addition, a tin wind-scoop fitted to it, which insures a continuous supply of fresh air. On the other hand, the drawbacks are noise of the sea and condenser discharge, which may keep a light sleeper awake. In bad weather the ports must be kept closed, ventilation being at once very much reduced. Whereas, in an inside cabin—that is, in modern-built ships—ventilation is generally obtained by a vertical shaft leading right up to the uppermost deck, which need never be closed down except during a rain squall. Broadly speaking, an inside cabin is quieter than an outside one, and also cooler, provided it is not near

boiler spaces, although, of course, it is more gloomy, owing to the absence of daylight.

In the author's opinion the ideal cabin is the outer one of the combination known as a 'Bibby's Tandem.' It combines the advantages of both with the drawbacks of neither, having, in addition, considerable space for stowage of trunks, etc.

Reverting to the other aspect of the situation of cabins, naturally a cabin at or near the centre of the ship will feel less motion than one at either end ; also one at the forward end will be more or less free from vibration as compared with one aft. In fact, with regard to vibration, the modern vessel of considerable length appears to follow the laws applicable to a stretched string, having nodes and internodes of vibration. The position of such, though probably capable of determination by mathematical calculation, is usually only discovered after the vessel is in commission, resulting in certain instances in the entire disuse of rooms, well fitted and furnished, which chance to be located at one of these internodal points.

There is also the question of a deck cabin, as compared with one on the spar or main decks. The advantages of the former are more air and light, as they are usually fitted with large square windows, in place of the customary round ports. The windows can be kept open in practically all weather. In this case the drawbacks are noise of deck-games, people walking and talking outside, sometimes till late at night, washing down decks, and also accentuated motion during rolling, owing to increased height above the water-line. A ship in the water is to all intents and purposes like a vertical needle on a horizontal axis, and obeys the same laws of deflection. Further, a deck cabin does not

obtain the same privacy as one down below ; the door, if it leads directly on to the deck, must be kept closed, and the windows screened.

In addition to the foregoing, proximity to hatchways, coal-bunkers, pantries, and galleys, etc., should be avoided, as the noise therefrom is most annoying and generally incessant. Therefore, when booking a berth all these factors must be taken into consideration, because, naturally, a bunker or similar drawback will not figure as such on the berthing plan.

Duration of the Voyage.—For convalescent medical and surgical cases nothing is so good as a sea-trip in a well-filled passenger-ship, where good living, genial company, and amusement are valuable auxiliaries to the recuperative powers of sea-air. The Orient Steam Navigation Company issues a return fare at slightly reduced rate from London to Marseilles. One night is spent at the latter port, waiting for the homeward-bound ship, and the whole round voyage lasts fourteen days. A feature about this particular trip is the absence of any marked change in temperature, thus doing away with the necessity of a large assortment of wearing apparel.

If preferred, a passage in one of this Company's cruising yachts may be taken. From London or Southampton to Madeira and back by the Union Castle Line is equally good, although the thermometer tends to rise as the Islands are approached. A longer voyage is obtained by a run out to the West Indies by the Royal Mail Steam Packet Company or the Direct Imperial West India Mail Line from Bristol. The P. & O. have a ship in commission almost all the year round as a pleasure cruiser. There are numerous lines taking passengers on voyages suitable for convalescents, and

it would serve no purpose to enumerate them. For cases other than surgical or those recovering from acute medical conditions, exanthems, influenza, etc., no voyage of less than two months' duration is of much use as a permanent cure.

Length of Time between Ports of Call.—This is a factor of great importance in cases of nervous breakdown. Nothing is so irritating to some cases of this nature as the humdrum monotony of day after day at sea, with no change of scene or life to give an interest to the mind. Nerves are all on edge, tempers short, and fellow-passengers pall on the sufferer. If insomnia be one of his troubles, life is scarcely worth living. For this reason the Red Sea route is preferable to that of the Cape, if Australia, as is usually the case, is the final destination.

By this route the longest runs are from Suez or Aden to Colombo, and from thence to Fremantle. The latter takes ten days, with nothing of interest to relieve the tedium. It is, indeed, rare to sight another vessel on this run, and by this time even passengers who are well invariably become irritable and restive. Via the Cape are two long stretches, from Teneriffe to Cape Town taking from fourteen to seventeen days, while from the Cape to Fremantle, Albany, or Hobart averages eighteen days and upwards. The round voyage to New Zealand in the ships of the New Zealand Shipping Company, or Shaw, Savill and Albion, occupies four months. The outward passage is via Plymouth, Teneriffe, Cape Town, and Hobart, while the return voyage is made round Cape Horn, calling at Monte Video and Rio de Janeiro, Teneriffe, and Plymouth. A stay of twenty-eight days is generally obtained in New Zealand, during which the Lake District can be

visited to advantage, or the patient can leave for England again generally within two or three days if desired.

The voyage to the West Indies—Bristol to Jamaica—occupies about thirteen days, and makes a very pleasant run, except during the summer, when the atmospheric conditions are warm and moist as the Islands are approached. The voyage to India and the Far East is not desirable from an invalid's point, likewise the trip across the Atlantic to the United States or Canada. On the latter services the trip is too short and too hurried and full of bustle. The ships in the North Atlantic trade are nothing more nor less than ferries in the form of huge floating hotels. The drawbacks of hotel life for an invalid hardly require comment.

The Life led by a Patient on Board Ship.—All patients sent for a voyage must be strongly urged to avoid excess of any kind in the way of eating, drinking, card-playing, etc. They should live out on deck as much as possible, even in bad weather, and sleep with cabin ports open. Enough exercise should be taken daily, in the form of dumb-bells, if indicated, night and morning, and sharp walks up and down the deck. The walks should be graduated, being taken at intervals during the day, and the length of each spell carefully regulated by the surgeon on board. A short walk before breakfast attired in 'flannels' and a sweater, barefooted, followed by ten minutes' dumb-bells, a sea-water bath, and a brisk rub-down with rough towels, is most invigorating, leading to a thorough enjoyment of breakfast. A few turns round the deck last thing at night before retiring are the safest and best hypnotic. Early hours, both night and morning, should be kept.

The diet should be carefully considered, being confined more or less to plain 'roast and boiled,' as the menu

of the modern liner is drawn up to meet the demands of the healthy passenger and gourmet, not the invalid. If the practitioner desires his patient to be specially dieted, arrangement to this effect should be made with the company when booking a passage. By doing this a more or less satisfactory adherence to the prescribed scale can be obtained. Incidentally, a patient requiring a strict régime should not be sent to sea, as it is practically impossible for such to be properly carried out on a modern liner. The services of the entire galley or kitchen staff are kept fully employed in catering for those who are well. Any divergence from the ordinary menu entails much extra work, to say nothing perhaps of the carriage of special stores. Needless to say, 'food faddists' are not welcomed on board, although, on the whole, they receive far more consideration than they would elsewhere—for example, in hotels—and, be it noted, gratis.

The subject of constipation has been extensively discussed elsewhere, so need not be repeated here beyond emphasizing its importance (*vide* pp. 103, 170).

Patients, especially young adults, must be warned against being drawn into a set of card-players, who will play morning, noon, and often far into the night, in the stuffy atmosphere of the smoke-room. They will smoke most of the time, and, in all probability, drink more than is healthy or wise. The subject of alcohol at sea has been mentioned in a former chapter with regard to ship-surgeons, and the same remarks apply equally to their patients (*vide* p. 172).

There is no objection to them having their whisky-and-soda at meal-times, or perhaps last thing at night, but 'gins-and-bitters' and promiscuous 'pegs' at odd hours of the day are to be strictly prohibited.

Beer, unless the light-draught Laager, is not a suitable beverage at sea, generally speaking. It is too 'liverish,' particularly in hot weather, and also, in order to stand the sea-voyage, it has to be fortified, containing considerably more than the usual amount of alcohol. Most ships have a wine-room, stocked with wholesome and suitable brands, although some brands of Australian wines leave much to be desired on the score of maturity, being rather highly fortified and conducive to headaches. Mineral waters are carried in infinite variety, according to different trades and tastes. The best form of hot-weather drink is a 'gin-and-tonic,' it being a good diuretic and pick-me-up. The taste for it is, however, somewhat acquired. It is generally said to contain about 1 grain of quinine to the bottle of sweetened aerated water.

Tobacco is bought in bond, and its use should be restricted to the average daily amount. At sea, with no fixed occupation, there is a tendency to over-indulgence in the fragrant weed.

The whole secret of a successful voyage undertaken for health is temperance in all things, not necessarily abstinence therefrom. A person sent to sea for this purpose should not go labelled 'Invalid' if it can possibly be avoided, but simply be judiciously warned and given a free hand to 'play the game.'

So far no mention has been made of lady-patients, as most of the above will apply equally to members of the gentler sex, alcohol and tobacco excepted. Due warning as to ordinary functions and those peculiar to the sex must be given. The matter of clothing is naturally left to their own discrimination on broad lines.

Climatic and Thermal Changes likely to be met with during the Voyage.—Before sending a patient to sea

some inquiry as to his powers of supporting extremes of heat or cold should be made, and the particular route most adapted to them selected for preference. It is almost inhuman to send very obese patients for a trip down the Red Sea, say between the months of June and September. Their physical discomfort is great, and cannot be minimized very much. Likewise a thin, emaciated person, who feels the cold and is subject to chilblains, should never be ordered a cold-weather voyage. A ship, unless heated by electricity separately in each cabin and independently of the rest, is never warm and cosy without being unhealthily stuffy. With an open grate in the saloon, proximity to it is limited by lack of space and the individual selfishness of some human natures. If, on the other hand, it is warmed by steam-pipes, the atmosphere is invariably close and oppressive. The South-West Monsoon, which blows in the Indian Ocean between May and September, makes the passage very trying, even to those who are well, while invalids are always worse for the time being, finding life most unbearable. During this period the atmosphere is close and muggy, being heavily charged with moisture. The wind is warm and enervating, tropical rain squalls occur at intervals, and finally, on account of the high seas, ports may have to be kept shut. In addition to this, if the ship is travelling westwards, the full effect of wind and sea almost directly ahead or slightly on the port bow is felt, which in some cases produces sea-sickness as a further discomfort.

In the Red Sea the thermometer ranges between 60° and 90° F., according to season. June to September are generally considered to be the worst months in these parts, and during that time two or three days of excessive heat are likely to be encountered. Ninety degrees of

heat may not appear to be so great, but it must be remembered that sea heat is usually of the moist variety, and consequently a reading of this height is equivalent to one of 105° or even more on land, where the heat is generally dry.

Nowadays, owing to the improved design of ships no doubt, fatal cases of heat apoplexy are not as common as formerly, when four or even more deaths occurred while in the Red Sea. During the winter months it is occasionally cool, considering the latitude. In the Suez Canal the nights are often quite cold. The author has experienced a hailstorm in March in the Gulf of Suez, and seen hoar-frost along the banks of the Canal in January.

On the mail-run to Australia or the East, from twelve to twenty days of hot weather may be expected, according to the time of the year. Via the Cape of Good Hope there is not much real hot weather; perhaps five or six days while the ship is actually in the tropics. The rest of the voyage is in cool and occasionally in cold weather. After leaving the Cape, and heading south for the Antipodes, somewhere between 45° and 47° south—‘running the easting down,’ as it is technically termed—extremely cold weather is met with during the local winter months, June to September. Icebergs are not infrequently seen as spring approaches. The return voyage via Cape Horn is also cold and miserable until Monte Video or Rio de Janeiro is reached, after which it is very pleasant. Homewards via South Africa the course is generally laid straight across along the thirtieth parallel south, and leaves nothing to be desired.

The Mediterranean is not always what would be expected in the way of warmth. There are times and

places in which it is extremely cold, such as the Gulf of Lyons or Genoa, off the Cretan coast, and even as far south as Port Said. As a rule, however, such conditions are the exception.

North Atlantic weather in the summer-time is pleasant, except in the vicinity of the Gulf Stream, which makes everything clammy and moist, and is very enervating. In the winter-time it is undoubtedly about as bad as can be experienced at sea.

One of the most equable runs, as far as average weather conditions are concerned, is that from Boston or New York to Genoa via the Azores. It occupies about fifteen or sixteen days, and, once clear of the Gulf Stream, there is not much variation in daily temperature or weather. Comparatively speaking, the passage is made in about the same latitude throughout, as will be seen by the following rough table :

Boston, 42° N.	Azores, 37° N.	Naples, 40° N.
New York, 40° N.	Gibraltar, 36° N.	Genoa, 42° N.

The voyage is practically made within a range of six degrees and mostly in smooth water.

A short warm voyage may be taken from Bristol or Southampton to the West Indies. The Booth Line to South America is also a warm run, and caters for invalids on certain ships by carrying a fully-qualified nurse in addition to stewardesses. Incidentally, the Royal Mail Steam Packet Company do this also on some of their ships. Briefly, if Australasia be the destination and a warm run is indicated, then the mail-route is the best ; whereas for a cool or cold trip the Cape route is preferable. The best time of the year to send a patient out by the Red Sea is between October and February, returning late in May. For obvious reasons, the 'monsoon voyage'—*i.e.*, leaving England between

April and August—is better avoided. Early autumn is also the best for the Cape route, as the extreme cold in the Southern Hemisphere is avoided at this time.

Invalids returning via the Canal are often eager to disembark at Marseilles, making their way home overland and saving about a week. This should not be encouraged, as the week at sea from that port to London or Plymouth acts as a bracing tonic after the relaxation of the tropics. Moreover, the journey overland, unless taken in easy stages, is very trying.

All mention of rough or bad weather at sea has been purposely omitted, because, in the writer's opinion, it is impossible to foretell or calculate on the state of the sea in any particular locality until the vessel arrives there, quite regardless of its reputation for good or evil. On several occasions the Bay of Biscay has proved to be the smoothest part of the whole run from London to Port Said, etc. It is no doubt true that a certain law of averages holds in regard to likely weather conditions, but at the same time it is always liable to local disturbances, which may be run into and out of again, and consequently cannot be allowed for with any degree of certainty.

Types of Cases sent to Sea.—In order that the patient may not only receive every possible benefit from the voyage, but may also be spared from taking an unnecessary or unsuitable one, the last and by no means least important section of this chapter must be carefully considered. Here again it is absolutely impossible to be dogmatic and lay down definite ruling. Cases either will or will not do well at sea. Experience has shown that certain cases always improve, while others do not, or even get worse. There is yet a third class, which may be termed the doubtful one. It is with this class

that much judgment is required, and no one can foretell what the result will be. They should therefore not be sent without due consideration, the patient also being told as to the problematic nature of the result if circumstances appear to warrant such a proceeding. With every reservation and wish not to be arbitrary, the author proposes to mention broadly, on the merits of his own experience and that of seafaring colleagues, the types of cases likely to receive benefit from a sea-trip.

Surgery.—Post-operative surgical cases always do exceedingly well at sea, even if there should be any septic complications. As already mentioned, suppuration yields very readily to the mildest form of treatment and rarely gives cause for alarm. A short voyage of two or three weeks' duration is ample, although, naturally, if a longer one can be taken it is much better.

Medicine.—The beneficial prospects of medical cases at sea are by no means so clear and certain as those of the sister branch, and few definite rules can be laid down. To facilitate matters, it will be easier to deal briefly with disease in groups.

1. *Convalescents.*—Convalescents after acute illness, exanthems, etc., come under the same category as surgical cases, and always improve. After an attack of influenza a sea-trip is often a very satisfactory tonic, if not actually the best. Should there be any mental depression, then the voyage is better deferred for a little while until mental equilibrium is more restored.

In the case of exanthems every reasonable care must be taken to prevent possible infection of others. Some cases are occasionally met with where the minimum period of quarantine has not elapsed. This is almost a criminal offence, and ought legally to be subjected

to severe measures if discovered and definitely proved. Whooping-cough is an excellent example of this nature, and is by no means infrequent.

2. *Cardiac Disorders*.—Cardiac cases, both functional and organic, present no special indications for or against a sea-voyage, and as a rule derive benefit from it. If sent, they must be warned, or rather advised in the orthodox fashion, as to general principles.

3. *Blood Disorders*.—Anæmia in young girls must be classed in the list of doubtful cases. Some improve markedly, while others receive no benefit whatever. An anæmic patient should never be sent away without first informing her parents or herself of the problematic results, and when sent, the usual hæmatinic lines of treatment should be adopted, in conjunction with diet, etc.

Syphilitic patients in all stages do well, and any exacerbations yield readily. Moreover, treatment can be well supervised by the surgeon on board, and also in some cases patients are better for being removed from temptation in any form.

4. *Menorrhagia*.—This condition is also doubtful—in fact, might almost be classed as unsatisfactory, in spite of patients being sent away on account of it. Before leaving, a victim of this complaint should be told of this, so that necessary preparation can be made (*vide* p. 199).

5. *Osteo-Arthritis*.—This disease, as well as rheumatism and allied pathological conditions, is usually aggravated at sea. It often occurs in bouts at irregular intervals on change of weather.

6. *Gastritis*.—Gastric disorders, and all others requiring special diet, should not be sent to sea, because the dietary régime cannot always be properly carried out unless preparations are made beforehand and some

arrangements come to with the company. If the scale can be suitably carried out, then patients will derive the tonic effects of a voyage and should be sent.

7. *Renal Cases*.—Chronic interstitial nephritis and arterio-sclerosis, if sent to sea, should go for a warm-weather trip, as the heat will stimulate the sweat-glands, tending to relieve the strain on the kidneys. It is doubtful, however, if such cases would not be better in a warm climate, although a voyage might be taken.

8. *Chronic Pulmonary Tuberculosis*.—On no account is a case of chronic pulmonary tuberculosis that is at all advanced to be sent to sea.

Hæmoptysis seems to be induced, and there is the added risk of further strain through sea-sickness (*vide* p. 113). The patient himself tends to become morbid and introspective, the result of well-intentioned but ill-timed sympathy of others on board.

If the voyage is necessary for private reasons, then the patient must be judiciously advised as to the ordinary rules of health and hygiene. He should be told to bring his own cuspidor, taking every precaution against infecting others.

It is a very moot point whether an early case is much improved, or even arrested, owing to the lack of fresh food and the obstacles to leading an open-air life raised by ship routine and custom.

Incipient cases might be classed as doubtful, and could be sent for a short tentative voyage, with injunctions as to general signs and weight, etc. The ship's surgeon should be notified of cases of this nature, in order that he can render every professional assistance in the way of watching progress or otherwise.

A diagnosed early case should be sent to sanatorium for treatment, and not to sea, for reasons previously

mentioned. If sent, a whole room should be reserved, and the patient duly instructed.

‘Surgical tuberculosis’—joints, etc.—is, as a rule, inactive, or improves in cold weather, and might be given a chance.

Following on the active antitubercle crusade, now fully established in most civilized countries, has come the natural reaction in public opinion. Outside the circle of fellow-sufferers and those near and dear to him, the consumptive is now looked upon by the rest of the world as a communal pariah. He has taken the place of the leper of olden days, shunned by all cognizant of his complaint.

While in no way decrying the preventive measures adopted or the necessity for such, yet until the wholesale segregation of tuberculous patients is made compulsory, little can be achieved beyond the infliction of much mental suffering upon the victim. Every public conveyance—tram, train, or ‘tube’—every public room or enclosed space on land, is probably loaded with tubercle bacilli, and a source of active danger to anyone using it. Notwithstanding this, all of these in a busy city are filled to overflowing daily without comment. But should a consumptive happen to find his way on board a vessel, there is an immediate outcry. The purser’s office is besieged with complainants, all of whom are duly referred to the surgeon for consolation.

All shipping companies—and quite rightly, too—advertise their refusal to book consumptive passengers in any class, reserving the right, if booked, to cancel the passage prior to sailing. At the same time, however, little is done to carry out this principle before the ship actually sails, and it is left for the surgeon to accept or reject at sight on the gangway.

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A person telling the clerk when booking a passage that he is consumptive will naturally be refused there and then, also if he looks markedly suspicious even to a layman. But there are many who do not mention this fact, and may get on board undetected until a formal complaint is lodged by a cabin companion or others in the vicinity. The ship may be full, with every cabin occupied, and the patient is hustled about from pillar to post, until finally lodged in the ship's hospital. If the patient is a third-class passenger, all is well; but if he is in the saloon or second cabin, as yet there is no official accommodation provided (*vide* p. 212).

Rejection at the gangway as the ship is on the point of departure is obviously neither the time nor place for an act of such possible far-reaching consequences. As previously mentioned, a stethoscope is practically useless on board ship for fine diagnosis. What little use could be made of it at sea is stultified by the hubbub and turmoil inseparable from a departing liner embarking passengers.

A case occurred quite recently where a third-class passenger was rejected at the gangway by the ship's surgeon as a consumptive. He subsequently brought an action for, and obtained damages against the ship on the plea of illegal breach of contract. Expert evidence, clinical and bacteriological, was brought to prove him absolutely free from tubercle.

While admitting an error of diagnosis on the part of the ship's surgeon, still the same is liable to happen to the keenest expert under similar circumstances. Further comment is useless. If the presence of active tubercle bacilli is to be considered a bar to obtaining a passage in a ship, then the determination of this fact should be arrived at either before a ticket is issued or certainly

before a prospective passenger leaves or sells his home to join the ship. The latter is by no means an uncommon occurrence in the case of third-class passengers, and the resulting hardship is indeed great.

The most feasible method is for all the steamship companies to require a medical certificate to the effect that the bearer has been systematically examined for the presence of, and found to be free from tubercle bacilli within a week of the passage being granted. This should accompany a properly authenticated statement in the form of affidavit by the person taking out the passage. Any case of proved substitution of a passenger or false declaration should be rigorously prosecuted.

Until this is done by *all* shipping companies acting concertedly, any legislation on this subject is practically a dead-letter. Marked cases may presumably be rejected at sight by the booking-clerk in the office or by the surgeon on the gangway, but, nevertheless, there are many who find their way on board, only to be detected after the ship has left port.

With the ever-increasing immigration restrictions and vigilance of port medical authorities in the Colonies and foreign countries, some such scheme as outlined above will be urgently called for. The time cannot be far distant when the expense of maintenance and return to port of embarkation of undesirable passengers will out-balance the profits and consequent risks of large bookings.

It may here be mentioned that the landing of tuberculous persons, other than those born or previously domiciled therein, is absolutely prohibited in the Commonwealth of Australia, Dominions of Canada and New Zealand, and also Cape Colony. In spite of repeated

warning letters to this effect in the medical press, written by colonial local health authorities, patients suffering from tuberculosis of the lungs are still being sent to these parts by their medical advisers. Many are ultimately deported whence they came, and all are subjected to no little inconvenience and restriction while their fate is being decided by the local powers that be.

The right of any nation to exclude undesirable aliens cannot be questioned for one moment, and the same right must in due fairness be given to British possessions or Colonies beyond the seas. The latter already have enough of their own without importing any further cases. If the British Alien Immigration Restriction Act of 1906 is inoperative in England, as it is generally said to be, the fault lies not in the Act, but in its administration.

9. *Thoracic Disorders*.—Other types of thoracic complaints, such as 'weak chest,' chronic cough, bronchitis, etc., are often very much benefited by a long sea-voyage, although it is always open to question whether residence in warm and equable climates would not be as good, if not better. Balneology and climatology are such subtle sciences in the light of present knowledge thereof that it is difficult to forecast with any sense of certainty the results which will accrue to any one patient in any particular locality.

10. *Asthma*.—Persons subject to asthma should only be sent to sea in a tentative manner, as the effect of a voyage on some is to induce attacks, while others are decidedly free from them. If a sea-voyage is necessary for other reasons, patients should take a supply of their usual remedy with them. Moreover, other passengers sometimes object strongly to the fumes of various anti-asthmatical preparations which have to be burnt in the cabin. Hence the accommodation should be so

arranged that when occasion arises these powders, etc., can be burnt without incommoding others on board.

11. *Dipsomania*.—A dipsomaniac should never be sent to sea unless properly accompanied by some responsible person. Even then in a large ship it is practically impossible to prevent him obtaining liquor from some source or other—passengers, stewards, and other members of the crew. At times the ways and means adopted by these cases to obtain liquor are most ingenious. There is no way of restricting alcoholics other than inside four bare walls, under careful and continuous supervision. Any measures short of this are nearly certain to be subverted.

12. *Drug-Fiends*.—With cases of drug-mania the source of the evil is more readily got at and restricted on board ship. Outsiders who will procure liquor for a man will not, and as a rule cannot, obtain the drug in question. These cases should also be accompanied, if possible, and ought always to be reported to the surgeon on board, in order to prevent further debauches. They should not be sent away until the acute depression following on the withdrawal of the drug has subsided, owing to the danger of suicide. The trip should be taken more as a finish to the cure.

If a casual case is met with on a voyage, it is better to reduce the dose gradually instead of total withdrawal, as the conditions on board ship do not permit of sufficient privacy, etc., for the patient to undergo the usual phases consequent to this. Of course, if he is willing to attempt total abstinence, it is undoubtedly the better way ; but, as a rule, this is not possible.

13. *Low Mentality*.—Persons of eccentric habit, not to say weak or unsound mind, should never be sent to sea 'for a change.' Their presence is a source of

perpetual worry to those in charge of them, and passengers will not, as a rule, miss the opportunity of deriving some fun and amusement at their expense and to their detriment. The writer cannot express himself too strongly on this point, having seen a large number of weak-minded or eccentric individuals sent for a sea-trip with not the slightest beneficial result. Further, in some cases much trouble and expense were caused to the patients and their friends.

14. *Insomnia*.—The majority of cases of simple insomnia improve after the novelty of their surroundings has worn off and they have settled down to ship-routine. They should, however, not be sent until other measures have failed, and then only for a short voyage to begin with, as there are many little occurrences on a large liner preventing undisturbed sleep. If the voyage is a long one and the patient does not improve, then his condition is grave, and the risk of suicidal tendencies must not be forgotten.

15. *Neurasthenia*.—There are a large number of cases of nervous disease, mostly of the functional type, sent for a voyage—generally as a last resource. These form almost the bulk of patients sent to sea. Some undoubtedly improve very much in every respect ; others do not, landing back in England either *in statu quo ante* or very much worse, reviling everybody and everything—from the doctor who sent them to the ship which carried them. In the author's experience, only a small minority derive lasting benefit.

This large element of non-success is undoubtedly directly attributable, speaking generally, to the unsuitability of life on an ordinary passenger-ship to the needs of a case of this type, and not to the ill-effect of the sea. There are numerous little trifles occurring daily

which prove a source of continual worry and irritation to a 'nervous case,' tending to aggravate the condition. The noise of children, rattle of pantry ware, washing down decks in the small hours of the night, etc., all of which, mere trifles to a healthy individual, become magnified in dimension to a neurotic case. These could, no doubt, be eliminated in what might be termed a 'sea-going sanatorium'—*i.e.*, a vessel solely and entirely devoted to the service of invalids.

All the small details forming such a large factor in the treatment of the sick cannot be obtained or expected in a ship whose *raison d'être* is the carriage of passengers, mails, and merchandise. Invalids can receive but slight consideration under these circumstances, and have to be content with whatever is obtainable. Although attempts in the past have not been attended with much success—at any rate, of a financial nature—in the writer's opinion there ought not to be anything to militate against the medical and financial success of such a vessel if properly organized and managed.

Quite recently an old sailing-ship was actually, or intended to be, despatched from England as a combined nautical training college for prospective mercantile marine officers, a sanatorium for consumptives and dipsomaniacs. Incidentally she was to carry cargo. Truly a motley mixture, and not one calculated to gain either the confidence or support of members of the medical profession having the welfare of patients at heart. No half-hearted attempt at freight-earning and invalid-carrying combined can ever hope to be a success. It must be all or nothing for any gratifying medical results to ensue. There is no doubt whatever that a vessel specially built and managed on these lines would be a powerful therapeutic agent for the relief of certain

conditions, and would be a powerful weapon wielded by the medical fraternity for the benefit of the community.

Referring to existing facilities of marine therapy, the type of case most likely to receive benefit from a sea-trip is the overtired and overworked man, leading a busy city or professional life. He should, as a rule, be sent away in a full ship, where there is certain to be plenty to amuse and keep him occupied, distracting his attention from worries. It is the worries that kill both mind and body. At the same time, he, being but one among many, will not be obliged to take part in whatever amusement is going on unless he feels so inclined. There are certain to be two or three people in a similar plight to himself, with whom he can foregather quietly, if such is more agreeable to him.

A yachting cruise is an excellent way of going to sea, affording, as it does, a constant change of life and scenery, instead of the well-ordered run to time of a mailboat. The drawback to it is that most of the time is spent, not at sea, but in port, although the resulting diversion is greater. Here again due regard to the patient must be paid in making the choice.

Persons of a timid nature, fearful of accidents to themselves, etc., should not be sent for a long voyage at first, but should be gradually trained to ship life. They live in fear of accidents happening to the vessel the whole time; the first blast of a fog-horn makes them tremble all over, and while in this state their condition is most pitiable.

16. *Claustrophobia*.—Occasionally victims of claustrophobia are met with, requiring much management. In one instance arrangements had to be made for the patient to sleep on deck for the whole voyage.

17. *Calenture*.—Another rare and ill-defined condition of mental state is sometimes met with. This is known as ‘calenture’ or ‘sea-fever.’ The exact nature of this is unknown to the author, but it is apparently brought about solely through the patient being at sea.

Those afflicted by it seem to suffer from a temporary delusion that the sea is a green field full of flowers, which they are always anxious to pick. There is a complete loss of consciousness as to local surroundings. Patients present no indications to strangers, beyond being somewhat moody and reserved. They may be noticed to be frequently looking over the ship’s side at the water, particularly over the stern, watching the wake, which seems to fascinate them. When spoken to they appear distraught, with loss of orientation. Therefore anybody presenting this peculiarity sufficiently marked to become generally noticed should be carefully watched, in the event of it being one of these cases.

The author has only met with one instance, in which a man was caught in the act of climbing over the stern-rail. When questioned, he stated that he was ‘going to pick those flowers in the field.’ On recovery, after two or three days in bed, he denied all knowledge of his act. It is a moot point whether some of the supposed suicides which occur from time to time at sea are not really cases of this nature.

In a former chapter dental work was alluded to rather fully. At sea there is something which seems to arouse all the ‘pathogenic’ powers of dormant carious molars. Decayed teeth, hitherto painless, suddenly become active at most inopportune moments. Therefore to obviate such an occurrence, a patient should have his mouth put in order by a dental surgeon some time

previously to embarking. This should be done about a month before, so as to give newly-filled teeth a chance to settle down prior to becoming exposed to the influence of sea-air.

At present the general practitioner at home has a hazy sort of idea that a sea-voyage is an excellent restorative. Beyond this, he knows very little, and, what is more, cannot obtain many details. It was in the hope of supplying a little information on this subject that the author was tempted to include the foregoing chapter, more as an afterthought, when the main portion of the book was written. He is fully aware of its shortcomings and sketchiness, but thinks most of the salient points have been mentioned, and that such may prove a source of guidance to the busy family practitioner, who has not had the time or opportunity of spending a short portion of his career at sea, and yet is almost daily liable to be consulted on this subject.

APPENDIX I

UNIFORM AND OUTFIT

COMPILED for a voyage to Australia via the Suez Canal, lasting six weeks. Approximate cost of uniform, wherever obtained, is given as a rough guide.

UNIFORM.

Blue cloth frock-coat suit, £4 4s.	2 white mess-jackets, at 15s.
Blue cloth mess-jacket and vest, £3 3s.	to 21s. each.
Blue cloth or serge double-breasted reefer suit, £3 3s. to £4 4s.	2 white mess-vests, at 10s. 6d.
2 uniform cloth caps, band, badge, and two white cap-covers, 14s. 6d. each.	1 pair black boots, without toe-caps, 14s. 6d. to 21s.
Regulation overcoat, £4 4s.	2 pairs white canvas deck-shoes or boots, leather soled, at 5s. 6d.
6 white drill suits, at 15s. to 25s. each.	Solar topee (if uniform), £1 1s.
	2 pair regulation shoulder-straps, at 6s. 6d.

The above items are a minimum amount requisite for service in a mail-steamer. A little may be saved by not ordering uniform vests and making one pair of trousers do for frock-coat and mess uniforms. If this is done, they should not have side-pockets. Prices given to include uniform buttons and lace.

Buttons should be fixed on with clips, and not sewn, as they can then be subsequently exchanged for plain ones.

UNDERWEAR, ETC.

18 stiff-fronted white shirts.	3 black silk ties, including an evening one.
18 soft-fronted white shirts, with cuffs.	48 handkerchiefs.
36 collars (12 single for mess-uniform). Double collars are not uniform for frock-coat and mess-uniforms, but may be worn with undress.	2 pairs flannel trousers (cricket, etc.).
6 pairs underpants.	Tennis shirts, <i>q.s.</i>
9 vests.	1 pair rubber-soled buckskin boots or shoes.
12 pairs socks (black).	1 pair evening shoes.
9 pyjama suits.	1 black silk cummerbund to tie, for wear in tropics with mess-jacket instead of vest. This is allowed in some ships.
4 pairs knitted bathing-drawers for wear with white suits.	Usual suits of mufti, mackintosh, overcoat, etc., <i>ad lib.</i>

In very hot weather it is comfortable and permissible, though not uniform, to wear a soft-fronted shirt and double collar with white mess-jackets.

The initial outlay will depend upon how much additional underwear has to be purchased. Uniform itself will cost about £20, no matter where obtained. A canvas soiled-linen bag should also be included.

Small linen holders for shaving and tooth brushes, razors, combs, etc., to fix up on the bulkhead, are very convenient. They should be made of washing material. A larger one for boots and shoes is also useful.

A fitted leather roll 'housewife' is useful for minor repairs, and makes the owner independent of the stewardess.

White gloves are not usually worn at dances on board, so need not be provided.

Two or three pillows, and a silk or satin 'bunkspread,' will make a cabin look cheerful and bright.

Pictures should not be fixed with nails; drawing-pins will suffice. In putting them up, little plates of brass

should be used instead of wire, so as to make them fixtures, instead of swinging with every roll of the ship. On leaving a ship all holes in bulkheads should be filled up with putty.

A travelling-rug and suit-case or small kit-bag are handy for short excursions on leave from the ship.

Electric fans are not usually provided by the ship for officers, and before purchasing one (if required) official permission should be obtained from the management. As ships vary so much in the voltage of their electric installation, it is impossible to state what the voltage of a fan should be. Most ships are wired for about 100 volts ; anything less than this must be compensated by means of a resistance lamp put into the fan-circuit.

APPENDIX II

BOARD OF TRADE SCALE OF DRUGS, ETC., FOR ONE HUNDRED PASSENGERS ON A VOYAGE UNDER ONE HUNDRED DAYS

DRUGS.

	lb.	oz.	dr.		lb.	oz.	dr.
Acidum boricum (in powder) ..	0	3	0	Ferri et quininæ citratis ..	0	1	0
** „ carbolicum li-quefactum ..	0	4	0	Glycerinum ..	0	8	0
„ citricum ..	0	1	0	Glycerinum acidi tannici ..	0	2	0
* „ hydrocyanicum dilutum ..	0	0	2	* Hydrargyri sub-chloridum ..	0	0	2
* „ nitrohydrochloricum dilutum	0	4	0	„ cum creta ..	0	0	4
* „ sulphuricum dilutum ..	0	4	0	** Iodoformum ..	0	1	0
* Æther ..	0	6	0	³ Linum contusum ..	6	0	0
Alumen ..	0	2	0	** Linimentum belladonnæ ..	0	8	0
Ammonii bromidum	0	4	0	** „ camphoræ ammoniatum ..	0	6	0
„ carbonatis ..	0	3	0	** „ opii ..	0	4	0
* Argenti nitratis induratus ..	0	0	2	** „ saponis ..	0	12	0
Bismuthi carbonatis	0	2	0	Liquor ammoniæ acetatis ..	0	8	0
Borax ..	0	2	0	* „ arsenicalis ..	0	0	4
¹ Calcii hydras ..	0	1	0	* „ atropinæ sulphatis ..	0	0	2
Camphor ..	0	3	0	„ calcis ..	0	8	0
Chloroformum ..	0	6	0	** „ epispasticus ..	0	1	0
Collodium flexile ..	0	0	4	** „ ferri perchloridi fortis ..	0	0	4
Copaibæ ..	0	4	0	** „ hydrargyri perchloridi ..	0	6	0
² Extractum cascariæ sagradæ liq...	0	2	0	** „ iodi fortis ..	0	1	0
„ ergotæ liq. ..	0	2	0	* „ morphinæ hydrochloridi ..	0	1	0
„ hamamelidis liq.	0	1	0				
Ferri et ammonii citratis ..	0	1	0				

	lb.	oz.	dr.		lb.	oz.	dr.
** Liquor plumbi suba-				* Sulphonal (in pow-			
cetatis fortis	0	2	0	der)	0	0	4
* ,, strychninæ hy-				* Syrupus chloral ..	0	5	0
drochloridi ..	0	2	0	*† Tabellæ trinitrini ..	0	1	0
Magnesii sulphatis	3	0	0	* Tinctura arnicæ ..	0	1	0
Mistura sennæ				* ,, belladonnæ ..	0	1	0
comp.	5	0	0	* ,, benzoini comp.	0	2	0
* Oleum crotonis ..	0	0	1	* ,, camphoræ comp.	0	4	0
,, lini	1	0	0	,, c a r d a m o m i			
,, olivæ	0	8	0	comp. ..	0	6	0
,, ricini	1	0	0	,, catechu	0	2	0
** ,, terebinthinæ ..	0	6	0	* ,, chloroformi et			
Paraffinum molle ..	0	12	0	m o r p h i n æ			
Phenacetinum ..	0	0	4	comp. ..	0	1	0
⁴ Pilula colocynthis				* ,, digitalis	0	1	0
comp. (gr. iv.),				* ,, ferri perchloridi	0	2	0
4 doz.				,, gentianæ comp.	0	6	0
,, h y d r a r g y r i				,, hyoscyami	0	2	0
(gr. iv.), 3 doz.				* ,, opii	0	4	0
,, plumbi c. opii				,, scillæ	0	2	0
(gr. ii.), 1 doz.				,, senegæ	0	4	0
,, rhei comp. (gr.				,, zingiberis	0	2	0
iv.), 4 doz.				⁶ Unguentum acidi			
,, saponis comp.				borici	0	8	0
(gr. ii.), 3 doz.				,, gallæ c. opio ..	0	1	0
,, scillæ comp.				,, hydrargyri	0	2	0
(gr. iv.), 3 doz.				,, hydrargyri am-			
Potassii bicarbo-				moniatum ..	0	4	0
natis	0	4	0	,, hydrargyri oxidi			
,, chloratis	0	4	0	flav. dil. ..	0	2	0
,, iodidum	0	4	0	,, sulphuris	0	10	0
,, nitratis	0	1	0	,, zinci	0	8	0
⁵ ,, permanganas ..	0	4	0	* Vinum antimoniale	0	1	0
Pulvis cretæ aroma-				,, colchici	0	1	0
ticus	0	2	0	,, ipecacuanhæ ..	0	4	0
,, g l y c y r r h i z æ				Zinci oxidum	0	4	0
comp.	0	4	0	,, sulphatis	0	1	0
,, ipecacuanhæ ..	0	1	0				
* ,, i p e c a c u a n h æ							
comp.	0	1	0	One hypodermic injection case,			
,, jalapæ comp. ..	0	1	0	with syringe, nickel-plated			
Quininæ sulphatis	0	2	0	needles, and tablets of discs			
Sodii bicarbonatis	0	6	0	of—			
,, salicylatis ..	0	3	0	Tartrate of morphine (gr. $\frac{1}{4}$), 2			
Spiritus ætheris ni-				dozen.			
trosi	0	8	0	Sulphate of atropine (gr. $\frac{1}{100}$), 1			
,, ammoniæ aro-				dozen.			
maticus	0	6	0	Hydrochloride of cocain (gr. $\frac{1}{4}$),			
,, chloroformi ..	0	3	0	2 dozen.			
,, menthæ piperitæ	0	1	0	† Apomorphine (gr. $\frac{1}{20}$), 1 tube.			
,, vini rectificatus	0	6	0	1 dozen.			

DISINFECTANTS.

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| ⁷ Carbolic acid powder, or other disinfectant powder of approved quality, 1 cwt.
⁸ Commercial carbolic acid, or other disinfectant of approved quality, 2 gals. | Sulphur for fumigation, 5 lb.
^{*†} Tablets of perchloride of mercury to make a quart of 1 in 1,000 solution. |
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SUNDRIES.

- | | |
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| Lint, 8 oz.
Boracic lint, 8 oz.
Absorbent cotton-wool, 1 lb.
Strapping (rubber plaster), 3 yds.
Tow, 1 lb.
⁹ Sponges, aseptically prepared, in hermetically-sealed bottles, containing 1 dozen, 1 dozen.
Bed-pans, 1
¹⁰ Leg and arm bandages, 2 dozen.
¹¹ Flannel bandages, 3 dozen.
¹² Triangular bandages, 3 dozen.
Calico for bandages, 3 yards.
Flannel for bandages, 3 yards.
Gamgee tissue, 1 lb. (3 lb. maximum).
Double cyanide gauze, 2 yds.
[†] Oiled silk, or other substitute, prepared by Christy and Co., 1 yd.
[†] Waterproof sheeting, 4 yds.
Trusses : double, 36 in., 1.
,, reversible, 30 in., 1.
,, ,, 36 in., 1.
[†] Safety-pins, 5 dozen.
[†] Mustard leaves, 2 tins.
Plaster of Paris for bandages, 1 lb.
[†] Set of Cline splints, 1.
[†] MacIntyre's splint, 1.
¹³ Cardboard or perforated felt for splints.
[†] Minim measures, 2.
[†] Ounce measure, 1.
[†] Three-ounce measures, 2.
[†] Stomach-tube with funnel, 1. | ¹⁴ Higginson's enema syringes.
Glass or pewter half-ounce syringes, 2.
[†] Box of small scales and weights, 1.
[†] Iron basin (enamelled white) for lotions, 1.
[†] Wedgwood mortar and pestle, 1.
[†] Enamelled iron septic dressing-tray (triangular shape), 1.
[†] Wedgwood funnels, 2.
[†] Spatulas, 2.
Bottles for medicine :
2 oz., 2 dozen.
8 oz., 4 dozen.
¹⁵ Fluted (poison) bottles :
2 oz., 1 dozen.
¹⁶ 6 oz., 1 dozen.
[†] Dispensary paper, 1 quire.
Camel-hair brushes, 3.
Pill-boxes (nested), 1.
Corks (assorted), 6 dozen.
Gallipots, 6 dozen.
Blank labels, 6 dozen.
Poison labels, 2 dozen.
[†] Ether inhaler, 1.
[†] Urinary test-case, containing spirit-lamp, litmus-paper, urinometer, twelve test-tubes, nitric acid, and liquor potassæ.
¹⁷ Glycerinated calf-lymph, 2 dozen.
[†] Authorized book of directions ('Ship-Captains' Medical Guide,' latest edition), 1.
[†] British Pharmacopœia, 1.
^{18†} Two-gallon Pasteur filter, 1. |
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MEDICAL COMFORTS.

Articles.	Quantities for 100 Passengers.
Arrowroot	7 lb.
Pearl barley	5 lb.
Semolina	10 lb.
Essence of extract of beef, of approved quality	Twenty $\frac{1}{4}$ -lb. tins.
Condensed milk, of approved quality ..	Thirty 1-lb. tins.
Brandy	1 gallon.

The foregoing scale applies practically to ships engaged on the North Atlantic service, with the exception that the undermentioned articles are not officially required and that the quantities vary somewhat.

Acid hydrocyanicum dilutum.	Pilula scillæ composita.
Alumen.	Pulvis ipecacuanhæ.
Borax.	Pulvis jalapæ composita.
Ferri et ammonii citratis.	Spiritus ætheris nitrosi.
Ferri et quininæ citratis.	Ung. hydrargyri oxidi flavi.
Liquor atropinæ sulphatis.	Tinctura hyoscyami.
Liquor morphinæ hydrochloridi.	Tinctura belladonnæ.
Glycerinum acidi tannici.	

Flannel for bandages.

Tow.

DIRECTIONS FOR DRUGGISTS.

The medicines to be prepared, plainly labelled in Latin and English names, according to the British Pharmacopœia, and the official dose for an adult given in the Pharmacopœia to be stated on the label.

All bottles to be stoppered, and all medicines indicated thus * to be marked with a red poison-label. The proportion of all poisons should be stated on the labels.

** All articles marked with two asterisks should, in addition to the red poison-label, be carried in green fluted bottles and labelled 'For external use only.'

All articles marked with one (*) or two (**) asterisks should be stored separately from other articles in the scale.

† Quantities of articles marked thus are irrespective of number of passengers.

¹ For the preparation of lime-water.

² Or in tablet form, 3 dozen, each tablet containing 2 grains of the solid extract.

³ Add 2 drs. of powdered camphor to each pound.

⁴ All pills to be coated with gelatine.

⁵ Directions for making the liquor to be on the bottle.

⁶ One drachm to the ounce of white or yellow wax should be incorporated with all ointments.

⁷ A powder containing not less than 20 per cent. of pure carbolic or cresylic acid. The powder to be securely packed in tin canisters, containing not more than 4 lb. in each tin.

⁸ A liquid containing not less than 80 per cent. of free carbolic or cresylic acid.

⁹ Under 200 passengers, 1 bottle; from 200 and under 400, 2 bottles; 400 passengers and over, 3 bottles.

¹⁰ Six yards long, 3 in. wide.

¹¹ Six yards long, 6 in. wide.

¹² Base, 48 in.; sides, 33 in. each.

¹³ Under 500 passengers, 4 sq. ft.; 500 and over, 6 sq. ft.

¹⁴ Under 500 passengers, 2; 500 and over, 4.

¹⁵ Under 500 passengers, 1 dozen; 500 and over, 2 dozen.

¹⁶ Under 500 passengers, 1 dozen; 500 and over, 2 dozen.

¹⁷ Under 500 passengers, 2 dozen; 500 and over, 4 dozen.

¹⁸ The surveyors will require all filters to be tested at the Government Laboratory.

APPENDIX III

OFFICIAL LIST OF SURGICAL STORES

AMPUTATION CASE.

1 Fergusson's small saw.	1 aneurism needle.
1 amputation saw.	1 set tracheotomy instruments.*
2 amputation knives.	3 double tubes and trachea dilator.
1 large dissecting forceps.	1 Esmarch's tourniquet (plain, with hooks).
1 pair bone forceps (bent).	1 œsophageal probang, with bristle.
2 pairs Wells' pressure forceps.	2 clinical thermometers (self-registering).
1 trephine ($\frac{3}{4}$ in. size).	1 stethoscope.
1 elevator.	1 ft. drainage tubing (No. 10 gauge).
1 trephine brush.	1 length silkworm gut ligature.
1 eye spud.	
2 scalpels.	
1 hernia knife.	
1 hernia director.	
2 trocars and cannulas.	

POCKET CASE.

1 artery forceps.	1 silver director.
1 dressing forceps.	1 caustic case.
1 finger-knife.	1 pair scissors.
1 curved bistoury (sharp pointed).	1 spatula.
1 curved bistoury (blunt-pointed).	2 lancets.
2 probes.	1 gum lancet.
	12 needles in vaseline.†
	1 tablet silk (with four sizes).

* No sharp hook is included.

† An objectionable method of keeping needles. When wanted, a lot of time is taken up cleaning them and clearing the eye of vaseline. They should be kept dry or in rectified spirit after being sterilized

LEATHER MIDWIFERY ROLL.

Blunt hook.	Simpson's long midwifery for-
Perforator.	ceps.
Craniotomy forceps.	

LEATHER TOOTH ROLL.

Upper molar (right and left).	Lower hawkbill bicuspid.
„ bicuspid.	„ molar.
„ incisors.	Hawkbill stump.

I case containing silver catheters (Nos. 4 and 8, and No. 12, with prostatic curve).	I urinary test-case (containing spirit-lamp, urinometer, litmus, twelve test-tubes, nitric acid, and liquor potassæ, 2 ozs).
I full set soft olive-headed catheters (1 to 12).	I aspirator, with two needles and bottle, in case.
I hypodermic injection case, with syringe, nickel-plated needles, and discs.	I ether inhaler.

APPENDIX IV

LIST OF MEDICAL STORES NOT REQUIRED BY BOARD OF TRADE SCALE, AND WHICH IT IS USEFUL TO HAVE ON BOARD

DRUGS, ETC.

Tincture of aconite.	Urotropin.
„ cinchona.	Salol or beta naphthol (tablets).
„ nux vomica.	Calomel tablets, gr. $\frac{1}{8}$, $\frac{1}{4}$, 1, 2, 5.
„ orange or lavender.	Antidiphtheritic serum (B. W. or P. D. and Co.).
„ rhubarb.	Fehling solution (tabloids) (B. W. and Co.).
„ gelsemium.	Eserine (gr. $\frac{1}{4}$ tablets).
Santonin (tablets).	Pilocarpin nitrate (gr. $\frac{1}{4}$ tablets).
Extract of male-fern.	Amyl nitrite capsules.
Paraldehyde.	Adrenalin solution.
Potassium bromide.	Aspirin (gr. v. tablets).
„ citrate.	Phenacetin and caffen (gr. iv. and i. tablets).
„ chlorate (gr. v. tablets).	Validol.
Acid. phosphoric. dil.	Tablets for naso-pharyngeal douche.
Fuller's earth.	„ „ ophthalmic use.
Saccharin tablets.	Infant foods (assorted).
Decoction or extract of aloes.	
Papain or pepsin tablets.	
Emplastrum belladonnæ.	
Seidlitz powders, or citrate of magnesia.	

APPLIANCES, ETC.

Small portable sterilizer (steam or electric).	Head-mirror and set of laryngeal mirrors.
Bronchitis inhaler.	Finger bandages.
Ham splints (adult and infant), 2.	Martin's elastic bandage, $2\frac{3}{4}$ in.
Wafer cachets or empty capsules, to take gr. v.	Printed labels, assorted, with rack for storing.
	Glass or other label-damper.

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Glycerine suppositories for infants and adults.

Typhoid agglutometer test-case (P. D. and Co.).

Dressing caddy, with various widths of gauze and adhesive plaster (Seabury and Johnson).

Small pedestal scale, to be screwed on bench.

Formalin lamp for fumigating, and a supply of solution or tablets.

Leslie's adhesive tape, $\frac{1}{2}$ and 1 in.

Doulton-ware hot-water bottles, 2.

Invalid feeding-cups, 2.

Glass eye-baths, 2.

Ligatures in sealed tubes (assorted).

Electric pocket-torch, with spare batteries.

Wooden tongue-depressors.

Eye-shades.

Bayonet-pointed upper molar stump forceps.

Eye-droppers.

Dispensary paper cut to various sizes for bottles, powders, etc.

Broad webbing straps for splints.

Metal retractors (hernia).

DISPENSING.

For dispensing purposes it is a good plan to keep in solution of standard strength as many of the solid drugs in common use as possible. By doing this much time in dispensing is saved, and the dosage is more accurate *pro dosa* when small quantities have to be used.

Where indicated, spirits of chloroform, rectified spirits, or an emulsion of quillaia should be used as a preservative: an ounce to an 8-ounce bottle will serve all practical purposes.

It may here be stated that a solution of ferri et quin. citras is unstable, a fungus growth soon developing in it in spite of all precautions. The reason of this is unknown, but it is a constant occurrence which has defied the usual bacteriological technique employed to check it.

Eight-ounce bottles make a very handy size for stock bottles, and grs. v. ad \mathfrak{z} i. is a strength suitable for most salts.

Standard stock mixtures can also be made up in this form, 1 ounce of which added to 7 ounces of water gives eight or sixteen doses, as the case may be.

Incidentally, it may be mentioned that when dispensing for American patients the dose should not exceed two teaspoonfuls. As a rule they prefer their medicaments in tabloid or pill, or very small quantities if in liquid form.

Below are given two tables of proportions—one for making up stock solutions and the other for individual bottles.

TABLE FOR STOCK SOLUTIONS.
TOTAL AMOUNT OF DRUG REQUIRED.

Strength per oz.	2 oz.		4 oz.		6 oz.		8 oz.	
Grs.	Drs.	Grs.	Drs.	Grs.	Drs.	Grs.	Drs.	Grs.
1	0	16	0	32	0	48	1	4
2	0	32	1	4	1	36	2	8
5	1	20	2	40	4	0	5	20
7½	2	0	4	0	6	0	8	0
10	2	40	5	20	8	0	10	40
12½	3	20	6	40	10	0	13	20
15	4	0	8	0	12	0	16	0
20	5	20	10	40	16	0	21	20
25	6	40	13	20	20	0	26	40
30	8	0	16	0	24	0	32	0

TABLE FOR INDIVIDUAL BOTTLES.
TOTAL NUMBER OF DOSES.

Strength per Dose.	2.		4.		6.		8.		12.		16.	
Grs.	Drs.	Grs.	Drs.	Grs.	Drs.	Grs.	Drs.	Grs.	Drs.	Grs.	Drs.	Grs.
1	0	2	0	4	0	6	0	8	0	12	0	16
2	0	4	0	8	0	12	0	16	0	24	0	32
5	0	10	0	20	0	30	0	30	1	0	1	20
7½	0	15	0	30	0	45	1	0	1	30	2	0
10	0	20	0	40	1	0	1	20	2	0	2	40
12½	0	25	0	50	1	15	1	40	2	30	3	20
15	0	30	1	0	1	30	2	0	3	0	4	0
20	0	40	1	20	2	0	2	40	4	0	5	20
25	0	50	1	40	2	30	3	20	5	0	6	40
30	1	0	2	0	3	0	4	0	6	0	8	0

APPENDIX V

EMERGENCY APPLIANCES

THIS short supplementary chapter has been placed in the Appendix as a ready means of finding it when required. It has been written as a result of past experience, with a view to saving the reader time and trouble should any similar incidents occur in his practice. The items are given at random, as they were called to mind, and without any attempt at classification or sequence.

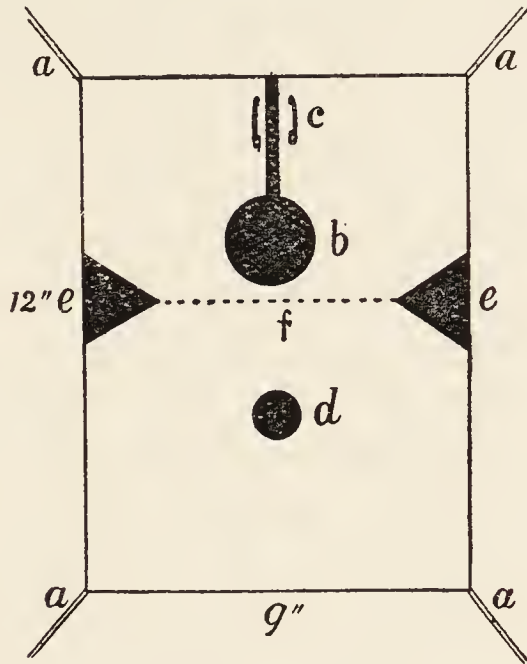
Feeding-Cups for Invalids.—These can readily be improvised out of the afternoon teapots usually found in the pantry, their only drawback being the weight, which is considerably heavier than the real article, and also the fact that the handles are situated the wrong way.

Ice-Bag.—An ordinary plain rubber sponge-bag suspended by the drawstring makes an excellent ice-bag. Before use its capacities for holding water should be tested. A regular ice-bag is really somewhat superfluous, as the demand for it is not great, and, as previously mentioned, rubber perishes very quickly at sea unless in constant use.

Aural Syringe and Insufflator.—By fixing the barrel of an ordinary $\frac{1}{2}$ -ounce glass syringe to the nozzle of a clean unused Higginson's enema syringe an effective aural syringe or powder insufflator is made. A drawback to it as an aural

syringe is that both hands are required to manipulate it successfully and safely, the patient being directed to draw his auricle upwards and forwards in the usual way.

Serotal Sling.—A capital serotal sling is made as follows : To the four corners of a piece of lint, 9 inches by 12 inches, strips of tape or bandage are fixed. The



SCROTAL SLING.

a, Tapes or bandages ; *b*, space for root of penis and scrotum ; *c*, cut edge and safety-pin ; *d*, hole for penis ; *e*, V-shaped pieces, which can be taken in to fit the parts more closely ; *f* line of folding. (Shaded parts represent the pieces cut away.)

lint is then cut out as shown in the black portions of the diagram.

It is applied by letting it hang vertically, the narrower side uppermost, from the front of the abdomen and behind the scrotum, which is passed through the circular cut in the lint. The cut edges are next brought together by one or more safety-pins, and the upper tapes taken over the anterior iliac spines and fastened behind. Necessary dressings or wool having been applied, the

free end of the lint is turned upwards, enveloping the parts, and its tapes are also tied behind. When in position, another hole for the penis can be made if required. To insure closer fit, **V**-shaped pieces should be taken out of the vertical borders and the parts approximated by pins. In this way a clean, effective, and cheap scrotal sling is obtained. A perineal band may be added if desired, but as a rule there is no call for it.

Splints.—The lid of a cigar-box, cut down and suitably padded, makes a good finger-splint, or a curved glass tongue-depressor may be used as directed on p. 182.

For other parts a removable plaster of Paris splint, when once properly made, is the best and easiest to reapply after massage. The most satisfactory form of plaster splint is the Bavarian, which is made as follows : Two pieces of medium weight flannel or broadcloth, etc., are cut to fit the part, with about an inch or two to spare at all margins. They are then closely stitched together down the centre. The limb, having been well cleansed, and shaved if necessary, should be oiled and subsequently lightly but evenly encased in a single turn of flannel bandage, without any reverses or creases. It is then laid on the shaped flannel, and the inner layers sewn together to fit the limb closely everywhere, the superfluous material being cut away. The outer flap should be cut away to the level of the stitches on the inner one. Plaster cream is next poured in between the two flaps and evenly distributed. The outer flap is then approximated to the inner, trimmed off, the whole being firmly bandaged and allowed to set.

On the following day, or when required, the bandage is removed, and the stitches holding the inner flaps together divided. The splint will then easily fall apart,

with a hinge at the back where the inner and outer layers were originally stitched together. Massage can be performed, and the splint accurately reapplied in a very short time, being held in place either by webbing or a bandage.

For compound fractures a window must be made over the lesion ; but as it requires considerable neatness and skill to make it satisfactorily, the orthodox method of wooden splints is preferable, unless, of course, the case is to be treated by the aseptic closed method.

The making of plaster emulsion requires some care, and is best done by sifting the dry powder into water, which is being kept carefully stirred all the time until the proper density is obtained. It is ready for use when it has a consistency of condensed milk. No time must be wasted in putting it on, as it hardens very rapidly, particularly in hot weather. A little salt added to the paste will accelerate the setting, while beer delays it somewhat. Care should be taken to keep the dry plaster in an air-tight receptacle ; otherwise it will get lumpy through partial combination with the moisture in sea-air.

A splint of this nature requires practice to apply properly, and is not so easy to make as a description indicates. The results, however, when satisfactory, far surpass any other form for rigidity combined with ease and rapidity of removal.

Strait-Jacket.—Occasionally mechanical restraint is required for patients, and a strait-jacket may not figure among the stores. A safe and good method of restraining a violent patient is to spread a stout bed-sheet on the deck. With assistance he is rolled round and round in it, the free margin of the sheet being pinned to the folds.

In this manner the most violent man can easily and safely be restrained by means of a bed-sheet and a few safety-pins. Unskilled but willing assistants are often inclined to use more force than is absolutely necessary, tiring themselves and perhaps injuring the patient, and certainly stimulating him to further violence. Always remember to have the boots removed and the clothing of a violent individual loosened before putting him in a sheet. Any force required to attain this object should be applied in such a way as to obtain a maximum mechanical advantage with a minimum expenditure of power—that is, the power should be applied at the shoulders and elbows for the upper part of the body, and at the iliac spines and just above the patellæ for the lower extremities. In this fashion the surgeon, with three assistants, can control the most violent for a considerable time without danger to anybody.

Restraint should not be applied until the first signs of commencing struggles are visible. It is quite futile—in fact, it only serves to increase the patient's excitement—for two or three men to hang on to each foot and hand and one to sit on his head, like a horse down in the street.

When a patient becomes abusive, using foul and filthy language, he can readily be stopped by the surgeon placing the flat of his hand over the patient's mouth. The latter's first act will be to try to bite it. The palm should be gradually flexed, but kept applied to the mouth to entice him to open it farther. When it is sufficiently open, the thumb and forefinger should be driven in through the cheeks, bringing them together. Thus the man can breathe quite well, but cannot speak for fear of biting his own cheeks. This method may be modified by using one finger only when examining

the throats of children. Finger pressure on the supra-orbital notch will often keep a drunken man quiet and tractable.

Spare Sheets.—It is a good plan to have a stock of condemned sheets, which can be used in septic cases and afterwards destroyed, as there is no convenience for sterilizing and washing linen on board. Otherwise a large amount of good linen may have to be wasted. All companies have a stock of linen which has been rendered unfit for ordinary passenger purposes, and is cut up into dusters, etc.

A list of linen destroyed in hospital use is always brought to the surgeon by the linen-keeper for his signature at the end of the voyage.

Canvas Cot.—In the event of having to land a severe case while the ship is lying out in the stream, it is useful to have a canvas cot on board, in which the patient can be securely laced, the whole being put over the side by means of a derrick and winch, so as to avoid all jarring and jolting. Details of this operation have already been mentioned (*vide* p. 33). If there is no cot on board, the chief officer should be asked to have one made by the sailmaker. A regulation navy type is the best pattern, details of which will be found in the 'Ship-Captain's Medical Guide.'

Stretcher.—A canvas-back deck-chair, laid out flat, makes a very good emergency stretcher. In many instances it is even better than the proper article, being easier to handle in narrow alley-ways and on companion-ladders. As a safeguard to the bearers, cross battens can be nailed on at both ends, so as to prevent fingers being trapped.

Cradle for Fractures (*vide* p. 180).

Extension for Fractures of Leg (*vide* p. 180).

APPENDIX VI

CERTIFICATES

EMIGRATION.

GOVERNMENT EMIGRATION OFFICE,

.....

....., 191..

I approve of taking medical charge
of the passenger, of, under the
provisions of Section 303 of the Merchant Shipping Act, 1894.

.....

Emigration Officer.

It is desirable that surgeons in charge of emigrant ships should keep a record of any sickness that occurs during the voyage, whether among saloon passengers, emigrants, or crew, and should report the same to this office* at the end of the voyage, making special mention of the following particulars :

Date of commencement of voyage.

Date of termination of voyage.

Date of the commencement of any infectious or contagious diseases, the number of cases, and the number of families affected.

Has the ship been disinfected ?

State the number of deaths and their causes.

Was the ventilation sufficient ? If not, state where it was defective.

Were any complaints made by the emigrants ? If so, state what complaints and what steps were taken in each case.

* The report should be addressed as follows :

O. H. M. S.

THE EMIGRATION OFFICER,

Board of Trade Offices,

.....

N.B.—The surgeon is particularly requested to fill up and return this report at the end of the voyage.

FORM OF CERTIFICATE OF BIRTH.

BIRTH OF A CHILD AT SEA ON BOARD						
Date of Birth.	Name.	Sex.	Name and Surname of Father.	Name and Maiden Name of Mother.	Rank or Profession of Father.	Signature of Master of Ship.

FORM OF CERTIFICATE OF DEATH.

DEATH AT SEA ON BOARD						
Date of Death.	Name.	Sex.	Age.	Rank or Profession.	Cause of Death.	Signature of Master of Ship.

The above are the official Board of Trade forms, which are also embodied in what is technically known as the 'Body of the Log.'

Letters containing full details in case of death must also be sent to the head office at the first available opportunity for the information of friends and relatives, etc.

HEALTH CERTIFICATES.

In the absence of a company's special form, or one of the port to be entered, the following will usually satisfy most requirements :

S.S.....
 at.....
 , 191..

I hereby certify that there is no, neither has there been any case of infectious, contagious disease or death (other than those to be subsequently mentioned) since leaving..... on 191.. ; that the general health of all on board during the voyage has been good, that no dead or sick rats* have been found in the ship, and that we have communicated with no vessel on the high seas.*

.....
 Surgeon.

NOTICE TO PASSENGERS.

Passengers are hereby informed that before obtaining pratique—*i.e.*, before they can be allowed to land—on arrival at, a medical inspection of all on board will be made by the port sanitary authorities.

They are therefore earnestly desired to render every facility to the boarding health officials by mustering when called upon to do so by the stewards, thus saving delay and unnecessary annoyance to all on board.

Probable time of arrival.....
 Passengers will muster in..... atm.

.....
 Surgeon.

* The allusion to rats is on account of plague restrictions applicable to ships sailing from plague-infected ports. Wreckage, etc., and ships communicated with on the high seas may be infected.

N.B.—The Yellow Jack must always be flown when entering port until pratique is granted. Neglect of this may mean delay in obtaining clearance by the medical authorities (*vide* p. 124).

APPENDIX VII

SPECIMEN OF CASE RECORD.

Name and Rating or Occupation.	Age.	Diagnosis.	Complications.	Result, with Date of Discharge.	No.
Date.	History and Notes.	Treatment.	Diet.		

A dozen temperature-charts should be obtained : they save much time and trouble.

APPENDIX VIII

AMERICAN SERVICE

SPECIMEN OF PASSENGER MANIFEST.

THESE manifests, or 'Thirty Sheets,' are supplied by the American immigration authorities, and are alike for all classes, save in colour, that for the first class being red, the second yellow, and the third white.

Each contains the forms of two affidavits, one for the commander, the other for the surgeon, which is given below. On the sheets are columns for various data, which, for purposes of brevity, will be given in tabular form.

AFFIDAVIT OF SURGEON.

I, A—— B——, surgeon of the S.S. C—— D——, sailing therewith [state whether surgeon 'sailing therewith' or 'employed by owners thereof,' as the case may be], do solemnly, sincerely, and truly.....that I have had.... years' experience as physician and surgeon, and that I am entitled to practice as such by and under the authority of [qualifications], and that I have made a personal examination of each of the aliens named herein, and that the foregoing lists or manifest sheets, in number, are, according to the best of my knowledge and belief, full, correct, and true in all particulars, relative to the mental and physical condition of such aliens.

Sworn to me before this day of, 191.,
at

.....
Immigration Officer.

1. Number on list.
2. Name in full. Family name. Given name.*
3. Age (years, months).
4. Sex.
5. Married or single.
6. Calling or occupation.

* American synonym for Christian name.

7. Able to read. Write.
8. Nationality (country of which citizen or subject).
9. Race of people (determined by the stock from which aliens sprang and the language they speak. List of races will be found on back of this sheet).
10. Last permanent residence. Country. City or town.
11. The name and complete address of nearest relative or friend in country whence alien came. (This is in case of subsequent deportation.)
12. Final destination. State.
13. City or town.
14. Whether having a ticket to such final destination.
15. By whom was the passage paid? (Whether alien paid his own passage, whether paid by any other person, or by any corporation, society, municipality, or government.)
16. Whether in possession of \$50, and if less, how much?
17. Whether ever before in the United States, and if so, when and where? Yes or no. If yes, year or period of years. Where?
18. Whether going to join a relative or friend, and if so, what relative or friend, and his name and complete address.
19. Ever in prison or almshouse, or institution for care and treatment of the insane, or supported by charity. If so, which?
20. Whether a polygamist.
21. Whether an anarchist.
22. Whether coming by reason of any solicitation, offer, promise, or agreement, express or implied, to labour in the United States.
23. Condition of health, mental and physical.
24. Deformed or crippled. Nature, length of time, and cause.
25. Height (feet, inches).
26. Complexion.
27. Colour of hair. Eyes.
28. Marks of identification.
29. Place of birth. Country. City or town.

From the above it will be seen that the authorities require somewhat elaborate details concerning immigrants. Columns 23, 24, and perhaps 28, affect the surgeon most particularly, and should be carefully filled up.

Incomplete data entail a fine of \$10 (£2) for each item.

With regard to having 'prohibited cases' on board—that is, those liable to a fine of \$100 (£20)—manifesting such only reduces the fine by \$10 if it is to be imposed. The imposition or remission of the fine depends to a great extent upon how the manifests have been made out, and whether it is a case of gross carelessness or possible accident that such case has been permitted to embark.

INSPECTION CARD

(Immigrants and Steerage Passengers.)

Port of departure, Date of departure,
Name of ship,
Name of immigrant.....
Last residence

Inspected and passed at*	Passed at quarantine port of....., U.S. (Date).	Passed by Immigration Bureau, port of..... (Date).
The following to be filled in by ship's surgeon or agent prior to or after embarkation.		
Ship's list or manifest, 1 No. on ship's list or manifest, 2		
Berth No.	Steamship Inspection. 1st day 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	To be punched by ship's sur- geon at daily inspection.

* Consular seal of port of embarkation.

WHITE STAR LINE

S. S.
From

Manifest Sheet

1

NAME

List Number

2

VACCINATED

(Signature or Stamp).

Keep this Card to avoid detention at Quarantine and on Railroads in the United States.

Diese Karte muss aufbewahrt werden, um Aufenthalt an der Quarantäne, sowie auf den Eisenbahnen der Vereinigten Staaten zu vermeiden.

Cette carte doit être conservée pour éviter une détention à la Quarantine, ainsi que sur les chemins de fer des États-Unis.

Deze kaart moet bewaard worden ten einde oponthoud aan de Quarantijn, alsook op de ijzeren wegen der Vereenigde Staten te vermijden.

Conservate questo biglietto onde evitare detenzione alla Quarantina e sulle Ferrovie degli Stati Uniti.

Tento listek musíte uschovati, nechcete-li ukarantény (zastavení ohledně zjištění zdraví) neb na dráze ve spojených státech zdržení byti.

Tuto kartocku treba trímát' u sebe aby sa predeslo zdržovanu v karantene aj na zeleznici ve Spojených Státoch.

MEDICAL CERTIFICATE FOR QUARANTINE AT NEW YORK.

S.S.....

This is to certify that during the voyage just completed there have been deaths, cases of infectious disease, and suspicious cases on board, and at present there are in the hospital the following cases, viz. :

.....
Remarks

.....*Master.*

.....*Surgeon.....*

I hereby certify that the persons whose names appear on the list of steerage passengers accompanying this certificate were personally examined by me during the preceding twenty-four hours before arrival at this port.

Number of steerage passengers vaccinated,

.....*Surgeon.*

Port of New York.191...

VOYAGE REPORT INSTRUCTIONS.

DEPARTMENT OF COMMERCE AND LABOUR, BUREAU
OF IMMIGRATION AND NATURALIZATION,
WASHINGTON.

July 22, 1907.

INSTRUCTIONS.*

TO MASTERS AND MEDICAL OFFICERS OF SHIPS, AND OTHERS
CONCERNED :

Under the authority of Section 22 of the Act of Congress approved February 20, 1907, it is hereby directed that on the arrival of a ship bringing passengers from a foreign to any port of the United States, the ship's surgeon shall deliver in person to the United States Commissioner, or his authorized representative, a complete report of the diseases (including manifestations of

* These instructions are printed in French, German, and Italian as well on the back of the form.

epilepsy, hysteria, or insanity), injuries, births, and deaths which have occurred among the passengers during the voyage.

Said report shall state in each instance the name of the passenger concerned ; whether a first-cabin, second-cabin, or steerage passenger, or a stowaway ; the letter or number used to designate the sheet of the passenger manifest on which the said passenger's name is to be found, and the number indicating the position of his name on said sheet ; the nature of the disease or injury from which he is or has been suffering, and his actual condition at the time of arrival (*e.g.*, 'improved,' 'recovered,' 'moribund,' 'dead').

Under the heading 'Remarks' the ship's surgeon will make such notations as 'Able to travel,' 'Accompanied by family,' 'Removed at quarantine with family,' 'In ship's hospital,' or other remarks which may be of assistance to the United States Immigration Officers in protecting the welfare of the sick, or in accounting for missing passengers.

Diagnosis and all other statements appearing in said report must be written legibly, but need not be in English, if the ship's surgeon be more familiar with another language. The ship's surgeon shall furthermore declare on oath that to the best of his knowledge and belief his report, as herein prescribed, comprises a true and complete statement of all the diseases, injuries, births, and deaths which have occurred during the voyage. The Commissioners of Immigration at the various ports of the United States have full authority to prevent the debarkation of the passengers from the ship until the ship's surgeon, or, in lieu thereof, the master of the ship, shall have furnished a medical report, as above indicated.

F. P. SARGENT,
*Commissioner-General of
Immigration*

Approved :

LAWRENCE O. MURRAY,
*Acting Secretary of Commerce and
Labour.*

VOYAGE REPORT.

REPORT ON DISEASES, INJURIES, BIRTHS, AND DEATHS DURING THE VOYAGE AMONG THE

PASSENGERS OF THE S.S., ARRIVING AT THE PORT OF

ON, 191...

Name (in full).	Sex.	Age.	Nativity.	Class—First, Second, Third, or Stowaway.	Passenger Manifest		Diagnosis.	Present Physical Condition.	Remarks.	A.	B.
					Sheet.	No.					
											Reserved for Remarks by Immigration Officials.

TO THE U.S. COMMISSIONER OF IMMIGRATION :

I hereby declare that, to the best of my knowledge and belief, the foregoing is a true and complete statement of the diseases, injuries, births, and deaths among the passengers during the voyage.

Sworn to before me :

.....

U.S. Immigrant Inspector.

.....

Ship's Surgeon.

Extract from Section 24 of the Immigration Act, approved February 20, 1907: 'Immigration officers shall have the power to administer oaths, . . . and any person to whom such an oath has been administered under the provisions of this Act who shall knowingly or wilfully give false testimony, or swear to any false statement in any way affecting or in relation to the right of an alien to admission to the United States shall be deemed guilty of perjury, and be punished as provided by Section fifty-three hundred and ninety-two, United States Revised Statutes.'

ORDINARY DEPORTATION.

NOTICE TO STEAMSHIP COMPANY TO DEPORT
ALIEN.DEPARTMENT OF COMMERCE AND LABOUR,
IMMIGRATION SERVICE.OFFICE OF THE COMMISSIONER,
NEW YORK,

....., 191..

TO THE MASTER, PERSON IN CHARGE, AGENT, OWNER, OR
CONSIGNEE OF THE S.S.

SIR,

You are hereby notified that the alien hereinafter named, who reached this port on the above-named vessel on, ha....., for the reasons* stated below, been duly excluded from admission into the United States, and you are therefore required to return to the port from which ..he came.

John Jones, 66, m., Welsh, from Liverpool—L.P.C.*
Martha Leary, 28, f., Irish, from Queenstown—D.C.D. (App.
dis.), etc.

Respectfully,

.....
Commissioner.

AR.

Recd. above-named two (2) aliens
on board S.S.

* L.P.C.—Likely to become a public charge.

D.C.D.—Dangerous contagious disease.

L.D.—Loathsome disease.

C.L.—Contract labourer:

‘App. dis.’ signifies that the appeal against adverse decision, which every person desiring to enter the country is entitled to has been dismissed.

FORM 597. SHEET A.

PARTICULARS CONCERNING ALIEN REQUIRING
SPECIAL CARE AND ATTENTION.

DEPARTMENT OF COMMERCE AND LABOUR,
IMMIGRATION SERVICE.

No. PORT OF....., 1910.
TO THE MASTER OF S.S.....
SAILING....., 1910.

The below described alien is to be returned by you to the final destination hereinafter stated, and requires special care and attention *en route*. You will retain this sheet marked 'A,' causing to be filled out and mailed to me as soon as practicable sheets 'B' and 'C.'

PARTICULARS.

Name
Age.....Sex..... Occupation
Married or single Nationality
Cause of deportation
Physical and mental condition
.....
Last residence in U.S. (exact address).....
.....
Final destination (exact address).....
.....
Names of relatives or friends (if any) by whom accompanied
.....
Baggage, money, or valuables
.....

.....
Commissioner of Immigration.

FORM 597.

RECEIPT FOR ALIEN AND BAGGAGE.

No..... PORT OF....., 1910.

Received of Commissioner of Immigration (or Immigrant Inspector-in-Charge) the alien..... (more fully described in sheet 'A' forming part of this record), and the baggage, money, or valuables named in said sheet, viz.
.....

.....
Master (First or Second Officer) S.S.....

FORM 597.

SHEET B.

RECORD OF OCEAN VOYAGE.

No..... (Place and date)....., 1910.

TO THE COMMISSIONER OF IMMIGRATION,
PORT OF.....

We, the undersigned Master and Chief Surgeon of S.S., certify that the alien (more fully described in sheet 'A' forming part of this record) received during the ocean voyage all necessary care and attention as called for by his condition, and that such condition remained throughout the voyage substantially the same as when he was placed on board, except as hereinafter stated :

.....
.....

We further certify that he left said steamship at the port of on, and was there* placed in custody of, to be taken to the final destination stated in sheet 'A.'

.....
Master.

.....
Chief Surgeon.

Received this..... day of, 1910, the above-named alien.

.....

* The custodian must be some proper attendant selected by the steamship company, *unless* the authorities at the port of foreign debarkation, notwithstanding request that such custodian be allowed to proceed, decline to consent thereto, and insist on taking charge of the alien. In that event the public officials so taking charge must be requested to receipt for the alien in the space above provided. They will be informed that the receipt is desired by the United States Government. If, notwithstanding such request, they decline to sign the receipt, then this fact should be stated in the space provided for such receipt.

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FORM 597.

SHEET C.

RECORD OF LAND TRIP AND DELIVERY AT FINAL DESTINATION.

*(For use where custodian selected by the steamship company
proceeds with alien to final destination.)*

(Place and date), 1910.

TO THE COMMISSIONER OF IMMIGRATION,
PORT OF

We certify that the alien (more fully
described in sheet 'A' forming part of this record) was on
., 1910, conveyed by from
., the seaport of debarkation, via
and, to, the place of final
destination, where he was left with the person whose signature
is attached to the receipt at the bottom hereof, who is
(here state such person's relationship to alien, or his official
position).

Special remarks :
.

Agents S.S.

Received this day of, 1910, the above-
named alien.

.

*(For use where foreign public authorities decline to allow
custodian to proceed.)*

(Place and date), 1910.

TO THE COMMISSIONER OF IMMIGRATION,
PORT OF

We certify concerning the alien (more
fully described in sheet 'A' forming part of this record), that
at the public authorities (namely,
.) took him into their custody, and declined to
allow him to be accompanied by any custodian of our selection,
although we declared that we stood ready to furnish one. We
thereupon delivered to them a copy of the particulars found on
sheet 'A' hereof, and informed them in writing that he required
special care and attention. Said authorities stated that he
would be sent to the final destination mentioned on sheet 'A.'

Agents S.S. 

To insure a complete muster of third-class passengers, and to know exactly who is missing in the event of such being the case, the following method may be adopted :

A sheet of blank paper is divided by thirty-one vertical lines and twenty-one horizontal ones. This gives a total of 600 squares. From left to right the squares represent the number of lines on the 'Thirty Sheets,'

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1			x																											
2						x																								
3										x	x	x																		
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whereas, from above downwards they indicate the number of each particular sheet.

As each passenger passes the surgeon during a round-up on board, his inspection-card number is called out, and the particular square corresponding to it on the diagram is marked with a cross. Before commencing, the squares representing those rejected at the gangway should be ticked off in a distinctive coloured ink or pencil. These numbers are obtained from the 'Thirty

Sheets,' which are marked accordingly before the vessel clears.

When the muster is over, all the squares should be filled in. Any blanks represent those who have failed to muster. Their names can be ascertained from the manifest, and a search for them instituted.

A ruler or sheet of cardboard is of material assistance in tracing out the desired square as the numbers are called out. The top and left-hand margins of the diagram should be numbered.

Any number of horizontal lines may be added, according to the number of 'Thirty Sheets,' but in practice it has been found that 600 squares are enough for one sheet. If there are more than 600 passengers a second series of squares must be drawn up and suitably numbered.

While the foregoing is not actually within the surgeon's sphere of influence, being clerical work pure and simple, yet a system of this nature gives him the means of acquiring the requisite knowledge of cases he is held responsible for by the ship-owner and the American immigration authorities.

APPENDIX IX

GLOSSARY OF COMMON NAUTICAL TERMS

- A.B.**, able-bodied seaman.
Aft, after, aftermost part of the ship.
Ahead, to go forward ; in front.
Alley-way, passage along or across a deck.
Amidships, pr. 'midships, centre portion of the ship.
Astern, to go backward ; behind.
Athwartships, pr. 'thwartships, across the ship.
Beam, side of a ship ; breadth of the ship.
Bilge, waterways in the bottom of a ship.
Bilge-keels, strips let into ship's side to steady a vessel in a seaway.
Bilge-tanks, compartments for storing water, salt or fresh.
Block, pulley.
Boatswain, pr. **bo'sun**, man in charge of sailors.
Boatswain's-mate, assistant to boatswain.
'Booby' hatch, a temporary structure leading to the deck below.
Bow, foremost end of the vessel ; directly ahead, port or starboard.
Brow, gang-plank.
Bulkhead, a dividing partition.
Bunkers, place where coal is stored.
Cable, anchor chain.
Cable-length, a measure of distance.
'Chips', slang term for carpenter.
C.O., short term for chief officer.
Companion, entrance.
Companion-ladder, a ladder leading from deck to deck.
Coolie, a coloured worker, including African, Indian, Oriental in general.
'Dago', any seafarer of Latin origin.
Davit, support from which boats are slung.
Dead-light, metal discs fitted to strengthen glass ports in bad weather.
Derrick, spar used for hoisting gear.
Dip, v., to lower the ensign ; salute.
Donkey-boiler, auxiliary boiler for various purposes.
'Dutchman', slang term for Danes, Germans, and Dutch,

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Ensign, pr. **ensun**, national flag flown by shipping.

Fall, running end of a rope-purchase.

Fiddley, part of uppermost deck where funnel and ventilators emerge.

Fireman, one who stokes the furnaces.

Forecastle, pr. **foc'sle**, forward end of ship ; crew living quarters.

Forward, pr. **forr'ard**, fore end of ship.

Galley, kitchen ; type of ship's boat.

' Glory-hole,' stewards' living quarters.

' Greaser,' one who lubricates engines and machinery.

Hatch, an opening to a deck below ; planks used to cover a hatch.

Hold, lowermost compartment of a ship.

House flag, company's flag.

Irons, handcuffs.

Jackstaff, flagpole at bow and stern of a ship.

Jacob's ladder, rope-ladder used for embarking pilots and others.

' Krooboy,' a West African caste carried for handling surf-boats.

' Lamps,' slang term for lamp-trimmer.

Lee, the sheltered side.

Leeward, pr. **loo'ard**, away from the wind.

' Lime-juicer,' a sailing-ship.

Log, official record of a ship ; mechanical device for recording distance travelled.

Log, v., to make an entry in log.

Main-deck, first unbroken deck running the whole length of the ship.

Mate, slang term for chief officer.

Morse, a code for signalling.

N.O.'s, naval officers.

' Old man,' the captain.

' Opposite number,' term designating the holder of similar rank in another ship.

Orlop-deck, lowermost deck ; the one immediately above the hold.

O.S., an ordinary seaman.

' Peter,' code flag ' P,' denoting impending departure of a ship.

' Pills,' slang term for ship-surgeon.

' Pilot Jack,' flag denoting want of a pilot.

Poop, aftermost part of a ship.

Port, left-hand side of a ship.

Quarter, flank of the ship on either side at after-end, port, or starboard.

Q.M., quartermaster ; helmsman.

‘ Red Duster,’ red ensign of the merchant service.

R.N.R., Royal Naval Reserve.

‘ Scowegian,’ term to denote Norwegian and Swedish sailors.

Seizing, rope-lashing.

Semaphore, a signalling method.

Side-lights, navigating lights—red for port, green for starboard.

‘ Soldiers’ wind,’ a following wind.

Starboard, right-hand side of a ship.

Stern, aftermost end of the ship.

Stern light, light showing astern.

Swing, v., turn with the stream or tide ; to ‘ slew.’

Tanks, receptacles for water, either ballast or drinking, etc.

Telegraph, device for transmitting orders from bridge to engine-room and other parts of a ship.

‘ Tramp,’ cargo-boat not employed on a regular service ; a ship carrying only cargo.

‘ Trimmer,’ one who brings coal from bunkers to stokehold (lowest grade in engine-room crew).

‘ Tween decks,’ intermediate decks, upper, middle, and lower.

Watch, a division of time ; a gang of men working at regular and stated hours—engine-room, four to eight, etc. ; division of sailors into port and starboard.

Watch below, off duty.

Watch on deck, on duty.

Weather, windy side.

Windbag, sailing-ship ; also ‘ windjammer.’

Windlass, device for obtaining mechanical power.

Windsail, canvas air-shoot rigged up to catch the breeze.

‘ Yellow Jack,’ code flag ‘ Q,’ flown when entering port until ‘ cleared,’ afterwards if ship is quarantined ; yellow fever.

APPENDIX X

MARINE law being embodied in a series known as 'the Merchant Shipping Acts,' of varying date and tenor, it is very difficult, not to say almost impossible, to give any coherent sequence of abstracts from the resulting jumble. A selection of the main clauses relative to a surgeon in his dual capacity on board has been drawn up for his guidance.

Culled from the Acts prior to 1906, and still operative (indicated by an asterisk), and the latest legislation on the point—The Merchant Shipping Act of 1906—the extracts represent the law as it stands to-day.

ABSTRACT OF CLAUSES IN THE MERCHANT SHIPPING ACTS.

PART II.

Signing
Articles.

***114.—1.** An agreement with the crew shall be in a form approved by the Board of Trade, and shall be dated at the time of the first signature thereof, and shall be signed by the master before a seaman signs the same.

2. The agreement with the crew shall contain as terms thereof the following particulars :

(a) Either the nature, and, as far as practicable, the duration, of the intended voyage or engagement, or the maximum period of the voyage or engagement, and the places or parts of the world, if any, to which the voyage or engagement is not to extend.

- (b) The time at which each seaman is to be on board or to begin work.
- (d) The capacity in which each seaman is to serve.
- (e) The amount of wages which each seaman is to receive.
- (g) Any regulations as to conduct on board, and as to fines, short allowance of provisions, or other lawful punishment for misconduct which have been approved by the Board of Trade as regulations proper to be adopted, and which the parties agree to adopt.

***115.**—1. The agreement shall (subject to the provisions of this Act as to substitutes) be signed by each seaman in the presence of a superintendent.

2. The superintendent shall cause the agreement to be read over and explained to each seaman, or otherwise ascertain that each seaman understands the same before he signs it, and shall attest each signature.

5. The agreements may be made for a voyage, or if the voyages of the ship average less than six months in duration, may be made to extend over two or more voyages, and agreements so made to extend over two or more voyages are in this Act referred to as running agreements.

6. Running agreements shall not extend beyond the next following thirtieth day of June or thirty-first day of December, or the first arrival of the ship at her port of destination in the United Kingdom after that date, or the discharge of cargo consequent on that arrival.

***123.**—In any legal or other proceeding a seaman may bring forward evidence to prove the contents of any agreement with the crew or otherwise to support his case, without producing, or giving notice to produce, the agreement or any copy thereof.

34.—1. If the master of, or a seaman belonging to, a ship receives any hurt or injury in the service of the ship, or suffers from any illness (not being venereal disease, or an illness due to his own wilful act or default or to his own misbehaviour), the expense of providing the necessary surgical and medical advice and attendance and medicine, and also the expenses of the maintenance of the master or seaman until he is cured, or dies, or is returned to a Sickness and Injury.

proper return port, and of his conveyance to that port, and in the case of death the expense (if any) of his burial, shall be defrayed by the owner of the ship, without any deduction on that account from his wages.

2. If the master or a seaman is, on account of any illness, temporarily removed from his ship for the purpose of preventing infection or otherwise for the convenience of the ship, and subsequently returns to his duty, the expense of the removal and of providing the necessary advice and attendance and medicine, and of his maintenance while away from the ship, shall be defrayed in like manner.

3. The expense of all medicines, surgical and medical advice, and attendance, given to a master or seaman whilst on board his ship shall be defrayed in like manner.

4. In all other cases any reasonable expenses duly incurred by the owner for any seaman in respect of illness, and also any reasonable expenses duly incurred by the owner in respect of the burial of any seaman who dies whilst on service, shall, if duly proved, be deducted from the wages of the seaman.

Venereal
Disease.

***160.**—Where a seaman is, by reason of illness, incapable of performing his duty, and it is proved that the illness has been caused by his own wilful act or default, he shall not be entitled to wages for the time being during which he is, by reason of his illness, incapable of performing his duty.

(The Board of Trade are advised that venereal disease does not disentitle the seaman to wages due under this section.)

Leaving
Seamen
behind.

36.—1. The master of a British ship shall not leave a seaman behind at any place out of the United Kingdom, ashore or at sea (except where the seaman is discharged in accordance with the Merchant Shipping Acts), unless he previously obtains, endorsed on the agreement with the crew, the certificate of the proper authority as defined for the purpose in this part of this Act, stating the cause of the seaman being left behind, whether the cause be unfitness or inability to proceed to sea, desertion, or disappearance or otherwise.

2. The authority to whom an application is made for a certificate under this section may, and, if not a merchant,

shall, examine into the grounds on which a seaman is to be left behind, and for that purpose may, if he thinks fit, administer oaths, and may grant or refuse the certificate as he thinks just, but the certificate shall not be unreasonably withheld.

37.—1. Where a master of a British ship leaves a seaman behind on shore in any place out of the United Kingdom on the ground of his unfitness or inability to proceed to sea, he shall deliver to the person signing the required certificate of the proper authority a full and true account of the wages due to the seaman, and if that person is a consular officer, shall deliver the account in duplicate.

38.—1. The master shall pay the amount of wages due to a seaman left behind on the ground of his unfitness or inability to proceed to sea—if he is left in a British possession to the seaman himself, and if he is left elsewhere to the British consular officer. Wages to Seamen left behind.

3. The payment shall be made, whenever it is practicable, in money, and, when not practicable, by bills drawn on the owner of the ship; but if payment is made by bill . . .

39.—Where the amount of wages due to a seaman left behind . . . is so paid to a British consular officer, that officer shall deal with the sum so paid to him in the following manner, namely :

1. If the seaman subsequently obtains employment at or quits the port . . . he shall deduct out of the sum any expenses incurred by him in respect of the maintenance of the seaman under the Merchant Shipping Acts, except such as the owner is by the Merchant Shipping Acts required to defray, and shall pay the remainder to the seaman, and deliver to him an account of the sums so received and expended on his behalf.

3. If the seaman is sent to a proper return port, at the public expense under the Merchant Shipping Acts, he shall account for the sum . . . ; and the sum, after deducting any expenses duly incurred in respect of the seaman, except such expenses as the master or owner of the ship is required to pay, shall be dealt with as wages of the seaman.

Distressed
British
Seamen.

41.—1. Where either

(a) Any seamen, whether subjects of His Majesty or not, are found in any place out of the United Kingdom, and have been shipwrecked from any British ship, . . . or, by reason of having been discharged or left behind from any such ship in any place out of the United Kingdom, are in distress in that place ; or

(b) Any seamen, being subjects of His Majesty, who have been engaged . . . to serve in a ship belonging . . . to a foreign country are in distress in any place out of the United Kingdom,

the proper authority as defined for this purpose . . . shall provide for the return of those seamen to a proper return port, and shall also provide for their necessary clothing and their maintenance until departure . . . and their maintenance while being so conveyed.

Proper
Return
Port.

45.—For the purpose of this Part of the Act, either the port at which the seaman was shipped or a port in the country to which he belongs, or some other port agreed to by the seaman, in the case of a discharged seaman, at the time of his discharge, shall be deemed to be a proper return port.

46.—1. A seaman may be sent to a proper return port by any reasonable route, either by sea or land. . . .

2. Provision shall be made . . . by placing the seaman on board a British ship which is in want of men to make up its complement, or if this is not practicable, by providing the seaman with a passage in any ship, British or foreign, or with the money for his passage, and as to any part of the route which is by land, by paying the expenses of his journey . . . or providing him with the means to pay those expenses.

47.—If any question arises as to what return port a seaman is to be sent . . . or as to the route . . . that question shall be decided by the proper authority ; and, in deciding . . . the authority shall have regard both to the convenience of the seaman and to the expense . . . and also to the fact that a British ship which is in want of men . . . is about to proceed to a proper return port.

49.—For the provisions of this Part of this Act, unless context otherwise requires—

1. The expression ‘ proper authority ’ means—

(a) As respects a place out of His Majesty’s dominions, the British consular officer, or, if there is no such officer in the place, any two British merchants resident at or near the place, or, if there is only one . . . that British merchant so resident.

(b) As respects a place in a British possession—a superintendent or . . . the Chief Officer of Customs and in relation to distressed seamen the Governor . . . or any person acting under his authority.

43.—A person belonging to a British ship shall not wrongfully force a seaman on shore and leave him behind, or otherwise cause a seaman to be wrongfully left . . . either on shore or at sea, in or out of His Majesty’s dominions. . . .

Forcing
Seamen
Ashore.

***209.**—1. Every foreign-going ship, having one hundred persons or upward on board, shall carry on board as part of her complement some duly qualified medical practitioner. . . .

Medical
Practi-
tioner.

***220.**—If a master, seaman, or apprentice belonging to a British ship by wilful breach of duty, or neglect of duty, or by reason of drunkenness—

Mis-
conduct.

(b) Refuses or omits to do any lawful act proper and requisite to be done by him for preserving the ship from immediate loss, destruction, or serious damage, or for preserving any person belonging to or on board the ship from immediate danger to life or limb, he shall in respect of each offence be guilty of a misdemeanour.

***239.**—5. Every entry in the official log-book shall be signed by the master and by the mate or some other of the crew, and also

Log
Entries.

(a) If it is an entry of illness, injury, or death, shall be signed by the surgeon or medical practitioner on board (if any).

***268.**—For the purpose of this Part of this Act, unless the context otherwise requires—

1. The expression ‘ emigrant ship ’ shall mean every sea-going ship, whether British or foreign, and whether or not conveying mails, carrying, upon any voyage to which

Emigrant
Ship.

the provisions of this Part . . . apply, more than fifty steerage passengers. . . .

Statute
Adult.

2. The expression 'statute adult' shall mean a person of the age of twelve years or upwards, and two persons between the ages of one and twelve years shall be treated as one statute adult.

Steerage
Passen-
ger.

14.—The expression 'steerage passenger' means all passengers except cabin passengers, and persons shall not be deemed cabin passengers unless—

(a) The space allotted to their exclusive use is in the proportion of at least thirty-six clear superficial feet to each statute adult ; and

(b) The fare contracted to be paid by them amounts to at least the sum of twenty-five pounds for the entire voyage or is in the proportion of at least sixty-five shillings for every thousand miles of the length of the voyage ; and

(c) They have been furnished with a duly signed contract ticket in the form prescribed by the Board of Trade for cabin passengers.

Medical
Stores.

***300.**—1. The owner or charterer of every emigrant ship shall provide for the use of steerage passengers a supply of the following things—namely, medicines, medical comforts, instruments . . . with written directions for the use of such medical stores.

2. The medical stores shall, in the judgment of the emigration officer at the port of clearance, be good in quality and sufficient in quantity for the probable exigencies of the intended voyage, and shall be properly packed, and placed under the charge of the medical practitioner, when there is one on board, to be used at his discretion.

Official
Clear-
ance.

4. An emigrant ship shall not clear outwards or proceed to sea unless a medical practitioner, appointed by the emigration officer at the port of clearance, has inspected the said medical stores, and certified to the emigration officer that they are sufficient in quantity and quality. . . .

Qualifica-
tions for
Medical
Practi-
tioner.

***303.**—1. Subject to any regulations made by Order in Council under this Part of this Act, a duly authorized medical practitioner shall be carried on board an emigrant ship—

(a) Where the number of steerage passengers on board exceeds fifty, and also

(b) Where the number of persons on board (including cabin passengers, officers, and crew) exceeds three hundred.

2. A medical practitioner shall not be considered to be duly authorized for the purposes of this Act unless—

(a) He is authorized by law to practise as a legally qualified medical practitioner in some part of His Majesty's dominions, or, in the case of a foreign ship, in the country to which that ship belongs ; and

(b) His name has been notified to the emigration officer at the port of clearance, and has not been objected to by him ; and

(c) He is provided with proper surgical instruments to the satisfaction of that officer.

3. When the majority of the steerage passengers in any emigrant ship, or as many as three hundred of them, are foreigners, any medical practitioner . . . may, if approved by the emigration officer, be carried therein.

4. Where a medical practitioner is carried on board an emigrant ship he shall be rated on the ship's articles.

6. If any person proceeds, or attempts to proceed, as medical practitioner in any emigrant ship without being duly authorized, or contrary to the requirements of this section, that person and any person aiding and abetting . . . shall be liable . . . to a fine not exceeding one hundred pounds.

306.—1. An emigrant ship shall not clear outwards or proceed to sea until—

(a) Either a medical practitioner, appointed by the emigration officer at the port of clearance, has inspected all the steerage passengers and crew about to proceed in the ship, and has certified to the emigration officer, and that officer is satisfied that none of the steerage passengers or crew appear to be, by reason of any bodily or mental diseases, unfit to proceed or likely to endanger the health or safety of the other persons about to proceed in the ship. . . .

2. The inspection shall take place either on board the ship, or, in the discretion of the emigration officer, at such

Official
Clear-
ance.

convenient place on shore before embarkation, as he appoints. . . .

Relanding
Steerage
Passen-
gers.

307.—1. If the emigration officer is satisfied that any person on board or about to proceed in any emigrant ship is by reason of sickness unfit to proceed, or is for that or any other reason in a condition likely to endanger the health or safety of the other persons on board, the emigration officer shall prohibit the embarkation of that person, or, if he is embarked, shall require him to be relanded; and if the emigration officer is satisfied . . . he may require the master of the ship to reland all those persons . . . with so much of their effects and with such members of their families as cannot in the judgment of such emigration officer be properly separated from them.

3. If any person embarks when so prohibited . . . or fails to leave the ship when so required . . . that person may be summarily removed, and shall be liable to a fine. . . .

4. Upon such relanding the master of the ship shall pay to each steerage passenger so relanded, or, if he is lodged and maintained in any hulk or . . . under superintendence of the Board of Trade . . . subsistence money at the rate of one shilling and sixpence a day . . . until he has been re-embarked, or declines, or neglects to proceed, or until his passage-money, if recoverable under this Part of this Act, has been returned to him.

308.—When a person has been relanded from an emigrant ship on account of his sickness or that of any members of his family, and is not re-embarked, or does not finally sail in that ship, he . . . shall be entitled on delivery up of his contract-ticket . . . to recover the whole, and in the case of a cabin passenger one-half, of the money paid. . . .

Discipline
among
Steerage
Passen-
gers.

325.—1. In every emigrant ship the medical practitioner, aided by the master, or, in the absence of a medical practitioner, the master, shall exact obedience to all regulations made by any such Order in Council as aforesaid. (*vide* Sect. 324).

2. If any person on board—

(a) Fails, without reasonable cause, to obey, or offends against any such regulation, or any provision of this Part of this Act; or

(b) Obstructs the master or medical practitioner in the execution of any duty imposed upon him by such regulation ; or

(c) Is guilty of riotous or insubordinate conduct, that person shall for each offence be liable to a fine not exceeding two pounds, and, in addition, to imprisonment for any period not exceeding one month.

326.—Spirits shall not during the voyage be sold directly or indirectly in any emigrant ship to any steerage passenger. Sale of Spirits.

330.—If a steerage passenger is landed from any ship, whether an emigrant ship or not, at any port other than the port at which he has contracted to land, unless with his previous consent, or unless landing is rendered necessary by perils of the sea or other unavoidable accident, the master of the ship shall be liable . . . to a fine not exceeding fifty pounds. Landing Passengers at other Ports than Destination.

Hospital Regulations.

11.—Sufficient space shall be set apart in every emigrant ship for use exclusively as hospital accommodation for the steerage passengers, being properly divided off from other living quarters to the satisfaction of the emigration officer at the port of clearance. At least one hospital shall be set apart for infectious diseases. Hospitals.

12.—The spaces set apart for such hospital accommodation shall be on or above the uppermost passenger deck, and shall be placed to the satisfaction of the emigration officer at the port of clearance. The space set aside as an infectious hospital shall be in as isolated a situation as possible.

13.—The space so set apart shall contain not less than eighteen clear superficial feet for every fifty steerage passengers whom the ship carries ; and shall be fitted with bed places, and supplied with proper beds, bedding, and utensils to the satisfaction of the emigration officer at the port of clearance, and shall throughout the voyage be kept so fitted and supplied. In no case shall the hospital space be less than one hundred superficial feet, but in vessels where the steerage passengers do not exceed two hundred in number there need not be more than two hospitals, including the one for infectious cases.

Suggestions by Board of Trade in Case of Fire.

Fire.

16.—The women, with children and sick, should remain under the immediate charge of the surgeon, who should endeavour to keep them from being a hindrance to the working parties, and prepare them for immediately leaving the ship, should that step ultimately become necessary. They should secure what warm clothing they can.

Lime-juice.

XII.—When the ship is not in the tropics it shall not be obligatory to issue lime-juice, but lime-juice may be issued at the discretion of the medical practitioner on board, or, if there is no such medical practitioner, at the discretion of the master.

The foregoing abstracts contain practically all the important clauses applying to a surgeon, as well as to other members of the crew.

From the standpoint of 'seaman,' Sections 114 (1, 2*a*, 2*g*), 115 (1, 2, 5, and 6) are very important, in order that a medical man wishing to spend but a short time at sea may not find himself bound to a ship at the expiration of that time. Except in the case of mail steamers running to scheduled time, and consequently to be relied on to return on or about a certain date, the foregoing sections must be clearly understood prior to signing articles.

The finding of a substitute in foreign ports is generally a matter of some difficulty and expense, and is always subject to approval of the master.

A seaman is quite within his rights in demanding to see the articles before signing. As previously mentioned, they are usually gabbled over quickly, in such a way as to be quite unintelligible even to the most attentive auditor. Should he not agree to any special 'company's clause' on the articles, he may decline to sign

until special undertaking is given that it shall not apply to him (*vide* Peninsular and Oriental Steam Navigation Company *v.* Paterson, *Lancet*, December 13, 1902, p. 1642, and January 10, 1903, p. 118).

The surgeon as 'seaman' signs articles with the master, and not the owner. Unless there is a separate agreement between him and the steamship company for a stated term, there is no obligation for the latter to re-employ him at the termination of a voyage. The same applies to the surgeon.

The clauses respecting distressed British seamen are self-evident, and will probably never be called in question by surgeons in that capacity. They are quoted, however, in case of such (41, 45, 46, 47).

The 'medical sections' are also quite concise and plain, requiring no other comment than upon their obvious insufficiency to meet the possible requirements of a modern emigrant ship (*vide* Chapter XII.).

Section 325 (1, 2) should always be borne in mind in the event of any difficulty occurring with steerage passengers. Under stress of competition by the various lines carrying them, steerage passengers are nowadays catered for almost luxuriantly, having stewards to wait on them, etc. Hence this class of passenger is wont to be fractious at times, through the unusual and enforced idleness, forgetting or not fully realizing the legal status under which he is travelling. A gentle reminder of this by the surgeon, who is almost certainly to be the first called upon in these cases, will usually bring about the desired result. Failing this, the matter must be reported to the commander, who will deal with the offender.

The law is not clear on the subject of compulsory vaccination of passengers on board, and it is difficult

to know exactly what view would be taken by a jury in a case for damages brought on this account by a passenger against a ship-surgeon who had vaccinated a 'conscientious objector.' The port regulations of most countries, however, are very clear on the point of enforced quarantine on landing of all unvaccinated persons. This fact should be made full use of when encountering objectors. With regard to the crew, practically all ships have a clause on their articles of agreement to the effect that members of the crew will submit to vaccination by the ship's surgeon.

In vaccinating a crew at sea in emergency, the members of the victualling department should be done first, as they come more into contact with passengers. Under other circumstances, stewards should be vaccinated in batches to avoid total disorganization of the work in the event of many severe reactions ; likewise the other departments of a ship.

APPENDIX XI

LIST OF PRINCIPAL STEAMSHIP COMPANIES EMPLOYING SURGEONS

Name and Address of Company.	Trade Routes, with Length of Round Voyage in Weeks.	Uniform— A, Full and Mess; B, Undress; C, None.	Whether Instruments must be provided by Surgeon.	Rate of Monthly Pay.	Increase or Bonus for Long Service.	Fees Chargeable to Saloon Passengers.	Miscellaneous.
Aberdeen Line to Australia, G. Thompson and Co., 7, Billiter Square, London, E.C	London to Australia	—	—	—	—	—	No permanent surgeon carried.
Aberdeen Direct Line to Natal, J. T. Rennie and Co., 4, East India Avenue, London, E.C.	London to Natal and South-East Africa, 10	B	Pocket-case	£4 to £6	Nil	Nil	—
African Steamship Co., Elder, Dempster and Co., Colonial House, 20, Water Street, Liverpool	Liverpool to West and South-West Africa, 9-13	B	In intermediate steamers	£10	No	No, except for venereal disease.	Outside work on coast, for which extra pay is received.
Allan Line, 25, Bothwell Street, Glasgow	Liverpool to Philadelphia, 4	B	No	£10	No	For illness contracted prior to embarking	—
American Line (Philadelphia Service), 27, James Street, Liverpool	Glasgow to— 1. India 2. New York	B A	Yes No	£8 £10	No No	No No	— —
Anchor Line, Glasgow	Naples to New York	—	—	—	—	—	Italian surgeon only.
Atlantic Transport Line, 38, Leadenhall Street, London, E.C.			Circular not returned				

LIST OF PRINCIPAL STEAMSHIP COMPANIES EMPLOYING SURGEONS—Continued.

Name and Address of Company.	Trade Routes, with Length of Round Voyage in Weeks.	Uniform— A, Full and Mess; B, Undress; C, None.	Whether Instruments must be provided by Surgeon.	Rate of Monthly Pay.	Increase or Bonus for Long Service.	Fees Chargeable to Saloon Passengers.	Miscellaneous.
Bibby Line, Messrs. Bibby and Co., 26, Chapel Street	Liverpool to Ran- goon, via Mar- seilles, Colombo, 12	A	Yes	£8	No	Attention free, except in cer- tain cases, and then only when offered voluntarily	First class only.
Booth Line, Tower Building, Water Street, Liverpool	Liverpool to West and South-West Africa, 9-13	B	Information declined	£10	No	No, except in venereal dis- ease	Outside work entailing extra pay.
British and African S.S. Co., Messrs. Elder, Dempster, Colonial House, 20, Water Street, Liverpool			Information declined				
British India Steam Navigation Co., 23, Great Winchester Street, London, E.C.			Information declined				
Bucknall Steamship Co. Bullard, King and Co., 14, St. Mary Axe, London, E.C.	London to Natal, Beira, about 9 London to Natal, Beira and Bom- bay, 12	C C	Circular not returned No No	£10 for voyage £15 for voyage	No No	No No	'As our steam- ers only carry first and second cabin passengers, altogether about 80, it is more a holiday than a task.'

Canadian Pacific Railway, Montreal SS. Office, 9, North John Street, Liverpool	Liverpool to Montreal (summer), St. John, N.B. (winter); London, Avonmouth, Antwerp to Canada	A	No	£10 to £12, varies with steamer.	No	—
China Mutual Steamers. See Ocean SS. Co. City Line. See Ellerman's.	—	—	—	—	—	—
Cunard Steamship Co., 8, Water Street, Liverpool	—	—	Information declined	—	—	—
Dominion Line, 27, James Street, Liverpool	Liverpool to Montreal (summer), Portland (winter)	B	No	£10	No	For illness contracted before embarking
Elder, Dempster. See African SS. Co., British and African, Imperial Direct West India Mail.	—	—	—	—	—	—
Ellerman Liners (City Line), G. Smith and Sons, 75, Bothwell Street, Glasgow	Calcutta, Bombay, Karachi, 12	B	Yes, as per list (pocket-case)	£7	No	No
Federal Steam Navigation Co.	—	—	Circular not returned	—	—	—
Houlder Line ..	—	—	Circular not returned	—	—	—

LIST OF PRINCIPAL STEAMSHIP COMPANIES EMPLOYING SURGEONS—Continued.

Name and Address of Company.	Trade Routes, with Length of Round Voyage in Weeks.	Uniform— A, Full and Mess; B, Undress; C, None.	Whether Instruments must be Provided by Surgeon.	Rate of Monthly Pay.	Increase or Bonus for Long Service.	Fees Chargeable to Saloon Passengers.	Miscellaneous.
Imperial Direct West India Mail, Messrs. Elder, Dempster, Colonial House, 20, Water Street, Liverpool	Bristol (Avonmouth) to Jamaica, 4	B	No	£8	No	No	—
Leyland Line, F. Leyland and Co., Ltd., 27, James Street, Liverpool	Liverpool to Boston, 4	A	No	£9	No	For illness contracted prior to embarking No	—
*Lund's Blue Anchor Line, Wm. Lund and Sons, 5, East India Avenue, London, E.C.	London to Australia, via Cape Town, 6	B	No	Nil	Nil	No	Passage-workers only
New Zealand Shipping Co., 138, Leadenhall Street, London, E.C.	London to New Zealand, via Cape Town; home, via Monte Video, 17	A	No	£8 8s. to £10 10s.	No	No	—
Ocean Steamship Co., and China Mutual S.N. Co., Alfred Holt and Co., Liverpool	Liverpool to China and Japan, 18; to China and Japan and Pacific, 6½ months	C	Yes	£8 first voyage; £10 subsequent ones, with a gratuity	Gratuity after first voyage at discretion of Medical Supt.	No	No saloon passengers carried; deck only on coast

Orient Steam Navigation Co., Ltd., Messrs. F. Green and Co., 13, Fenchurch Avenue, London, E.C.	A	No	£10	No	No	—
Pacific Steam Navigation Co., Ltd., 31-33, James Street, Liverpool						
Patrick Henderson and Co., 15, Vincent Place, Glasgow	B	Yes	£8	No	No	—
Peninsular and Oriental Steam Navigation Co., Ltd., 122, Leadenhall Street, London, E.C.	A	No	£10	No	No	—
Royal Mail Steam Packet Co., Ltd., 18, Moorgate Street, London, E.C.	A	Pocket-case only; rest supplied by Company	£10	£2 10s. per month for fluent Spanish on South American liner	No	—
'Shire Line'		Circular not returned				

* Acquired by Peninsular and Oriental Steam Navigation Co. since circular was returned.

LIST OF PRINCIPAL STEAMSHIP COMPANIES EMPLOYING SURGEONS—Continued.

Name and Address of Company.	Trade Routes, with Length of Round Voyage in Weeks.	Uniform— A, Full and Mess; B, Undress; C, None.	Whether Instruments must be Provided by Surgeon.	Rate of Monthly Pay.	Increase or Bonus for Long Service.	Fees Chargeable to Saloon Passengers.	Miscellaneous.
Shaw, Savill and Albion Co., Ltd., 34, Leadenhall Street, London, E.C.	London to New Zealand, via Cape; home via Monte Video or Rio de Janeiro, 17	A or B, according to ship	No	£10	No	No, unless under exceptional circumstances and with sanction of commander	—
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White Star Line, Messrs. Ismay, Imrie and Co., 30, James Street, Liverpool	London to New Zealand, 17		No	—	—		

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